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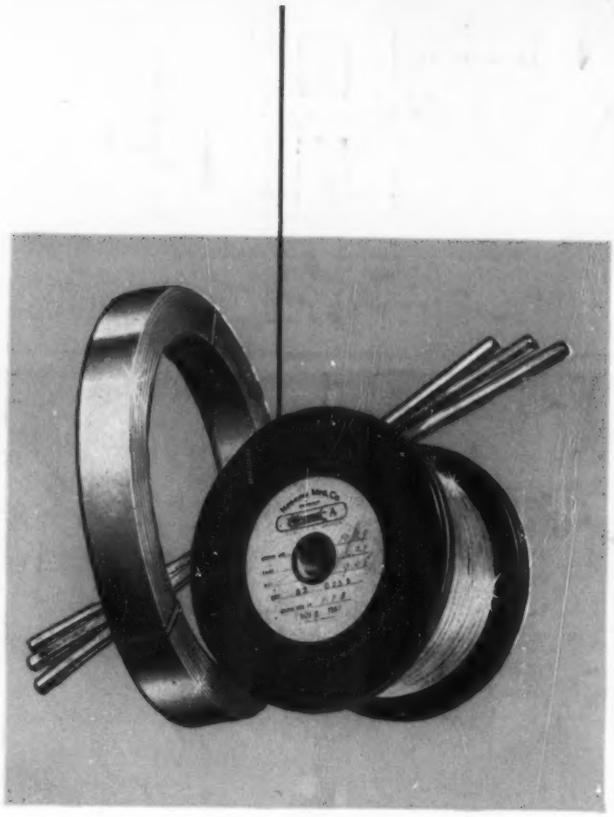
THE IRON AGE

95th Annual Review and Metal Industry Facts Issue January 5, 1950



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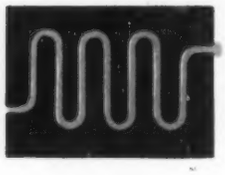

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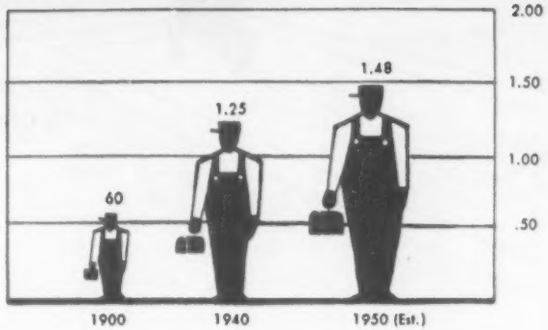
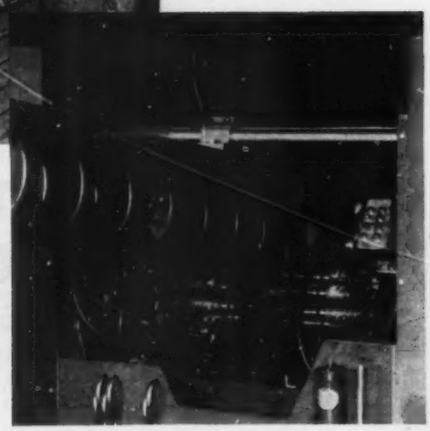


The basis of our well-being has always been closely allied with the *value of goods an hour's work will buy*. As the chart shows, this value has increased from 60c worth of goods in 1900 (at today's prices) to an estimated $1.48 worth in 1950. This value is bound to increase, and smart manufacturers know that *their* prosperity as well as the country's, depends upon their ability to produce more goods per man-hour expended.

here's how one manufacturer boosted production per man-hour eight times!



One of the world's largest producers of wheeled toys was faced with the problem of speeding up assembly of wheels. The assembly involved fastening two stamped wheel halves with 8 spot welds.

Instead of purchasing additional welders, training new operators and taking up valuable floor space, a special *multiple welder* was designed and built by Sciaky. The operator has only to load the gravity feed chute, press starting switch and then keep chute full. Finished wheels drop out the other side at the rate of 30 per minute!

Thus, only one operator welds more than 8 times as many wheels as formerly produced. Here is an instance where skilled use of resistance welding greatly *increased production* and *decreased unit cost*. For a complete description of this machine write for Bulletin No. 25C.

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Sciaky specializes in both a complete line of standard welders, and in the design and manufacture of special units, tailored to your needs. You are invited to consult our Application Department without obligation.

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● A recent survey of our customers impressed us again with the fact that "a company is only as good as its personnel!" Many customers told us that they like to do business with United States Steel Supply Company because of the courteous attention they receive from our salesmen. We're glad their efforts are appreciated and we assure you that every order you place, large or small, will receive prompt, courteous attention from men who know their business.

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UNITED STATES STEEL

► Stainless steel producers are banking on architectural applications to step up demand in 1950. The field is so promising that the entire industry is concentrating on it. A top-level executive predicts that architectural potential, when fully realized, will be as great as the entire present demand for stainless steels.

► An electronic torch, still in the laboratory development stage, will cut holes in firebrick and melt tungsten. Gas molecules fed through the high frequency arc are atomized; when they rejoin on a surface placed in the jet, intense heat is generated.

► This may be the year of decision on the magnetic taconite beneficiation program. Its proponents' hopes lie in further proving the economic feasibility of beneficiation and the merits of pelletizing from a commercial standpoint.

At the same time, expenditures for development of new high purity ore fields throughout the world will be substantial this year.

► The difficulties involved in keeping all of the auto industry going throughout an entire year are illustrated by this fact: During record-breaking 1949 at least one car or truck maker was idle during 29 of its 52 weeks.

► Last year's scrap market was one of the most unusual on record, with prices fluctuating widely and supply and demand never balanced. Experts in the salvage field believe that this year will see fewer wide fluctuations. They also believe that 1950 will not see prices equaling the early 1949 peaks.

► An intensive program of miniaturization is being pushed by the Army Signal Corps. A crystal rectifier the size of a match head, a 22-lb field switchboard and a 45-lb portable teleprinter are among the items developed so far. The program is aimed at developing easier to carry materiel that can be handled by fewer men and will withstand extremes of climate.

► Competition in the auto industry this year will be tough. Chevrolet will soon renew the automatic transmission battle. Later on there'll be more high compression engines. Nash will bring out a new light car, the first designed from scratch since the war by an established producer.

To pare their higher steel costs the auto companies have already changed some size specifications. Next they may change some chemical and drawing quality requirements, and perhaps switch axles from alloy to carbon steel.

► Steel sales executives expect present schedules of extra charges to last for some time. Many even hope they will not prove a fertile field for price cutting, when or if that time comes. But smart steel buyers have always found loopholes in the lists and the latest cards will probably prove no exception.

► This year will see intensified American efforts to build up sheet steel export business in the face of rising foreign competition. Bulldozers at work right now in northern France on the SOLLAC mills are preparing foundations for strip mills that will give France a potent export potential. This, added to mills now planned or under way in Britain and elsewhere on the continent, will add up to a stiff sheet steel struggle within the next few years.

GRAY IRON responds to HEAT TREATMENT

Automobile camshafts require a very hard wearing surface where they make millions of contacts with valve lifters. This is readily achieved by flame hardening and quenching of the Gray Iron castings.

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Are you taking full advantage of the extraordinary combination of useful properties offered by Gray Iron? These characteristics include:

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Corrosion Resistance
Machinability
Vibration Absorption
Durability
Wide Strength Range

GRAY IRON FOUNDERS' SOCIETY, INC.

NATIONAL CITY-E. 6th BLDG., CLEVELAND 14, OHIO

Local Market Area Trend Growing

World Steel Output Near Record

Fastener Prices to Rise Soon

The Iron Age SUMMARY

IRON AND STEEL INDUSTRY TRENDS

U. S. STEEL's confirmation of reports that it has acquired a site for a possible Eastern Seaboard mill points up the increasing trend toward decentralization of industry. That the proposed mill has reached the land-buying stage shows how industrial marketing areas are growing into self-contained units.

The metalworking field will see vast changes during the next 10 years, though it may be that long before steel is rolling from a Carnegie-Illinois mill on the site just bought, some 30 miles northeast of Philadelphia. Construction of the mill has not even been authorized yet and there is a vast ore development program in Venezuela to be completed before U. S. Steel will have a substantial and economical source of iron ore for seaboard furnaces. Labrador ore could be used of course, but Venezuela is the logical source.

Freight Rates Are Obstacle Now

But neither time nor the tremendous cost involved alter the fact that freight rates are a high hurdle between Pittsburgh and the lucrative Eastern market. Nor is there any evidence that U. S. Steel's plea for lower rail freight rates to the East will be granted. Instead they have been rising, gradually shutting all but Eastern mills out of the Eastern market on most products.

The market can not be ignored. Proponents of a New England steel mill point out that there is a demand for 7 million tons of carbon steel a year within the 200 mile radius which would comprise the normal market area of a New England mill. In the Philadelphia area the metalworking industry alone consumed approximately 1.5 million tons of steel during the past year.

World Steel Output High

The steel industry of the United States wound up 1949 by making about 12.5 pct less steel than it did in 1948 though it increased its steelmaking capacity by approximately 2.5 million tons, according to a survey by THE IRON AGE. World steel production for 1949 will total about 168 million net tons.

In spite of the steel strike in this country the world steel total set a record that was exceeded in only four World War II years. Had it not been for the steelworkers' strike it is probable that only one year (1943) would have topped 1949's production of steel ingots and castings.

Boltmaker's Steel Up Sharply

As steel consumers completed studies of the new price schedules, including extras, some came up with sharp price increases. Makers of screws, bolts, nuts and rivets found their steel costs up by from $7.00 to $19.00 a ton and there was little they could do in the way of process changes to wipe out the bulk of the boosts. Steel companies pointed out that items like hot-rolled rods, which went up by $9.00 on the base price have not been pulling their weight and some were going at a loss. But that did not help the fastener manufacturers. Price increases will be made soon on these products.

Fabricators who have been using steel strip in the narrower widths have turned their eyes on the possibilities of using wider sheets and slitting. A boom in slitter and shear sales may be ahead. Steel companies who make only the narrower widths are a bit concerned—their costs are going up but they have to price their product competitively.

Steel mills with good scrap inventories are sitting on their order books, buying little, and trying to unload what they have on cars in their yards. No. 1 heavy melting steel was off $2 a ton in Detroit, $1 in Chicago and 50¢ in New York. The steel ingot rate this week is tentatively set at 91 pct of rated capacity, up 1 point from last week's revised 90 pct. Last week mills paid overtime to men anxious to make up for pay lost in the strike, to come up with the smallest Christmas holiday drop in years—including war years.

A Chief Engineer speaks... about MEEHANITE® Castings

"Meehanite castings provide the combination of qualities that definitely contributes to the successful manufacture and function of our sheetmetal perforating units. Their ability to take a smooth finish and their wear resisting properties greatly increases the life of the units. The freedom from warpage or movement after machining found in Meehanite castings is of utmost importance in maintaining alignment of punch and die in self-contained units."

Ralph Weisbeck

Ralph Weisbeck
Chief Engineer
WALES-STRIPPIT CORPORATION

Cut-away view of a Wales type "BL" Hole Punching Unit. Many size punch holders of this type are made of Meehanite castings for the Wales-Strippit Corporation, North Tonawanda, N. Y.

The above statements express the importance of dependability and quality to those who carefully select and specify required engineering characteristics for their components. In the manufacture of Meehanite castings control of metal structure permits achievement of desired properties. When you insist upon Meehanite castings you are insuring just such benefits and economies plus built-in quality of your equipment.

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Lincoln Foundry Corp.....Los Angeles, California
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Otis-Fensom Elevator Co., Ltd.....Hamilton, Ontario
The Henry Perkins Co.....Bridgewater, Massachusetts
Pohlman Foundry Co., Inc.....Buffalo, New York
The Prescott Co.....Menominee, Michigan
Rosedale Foundry & Machine Co.....Pittsburgh, Pennsylvania
Ross-Meehan Foundries.....Chattanooga, Tennessee
Shenango-Penn Mold Co.....Dover, Ohio
Smith Industries, Inc.....Indianapolis, Ind.
Standard Foundry Co.....Worcester, Massachusetts
The Stearns-Roger Manufacturing Co.....Denver, Colorado
Traylor Engineering & Mfg. Co.....Allentown, Pennsylvania
Valley Iron Works, Inc.....St. Paul, Minnesota
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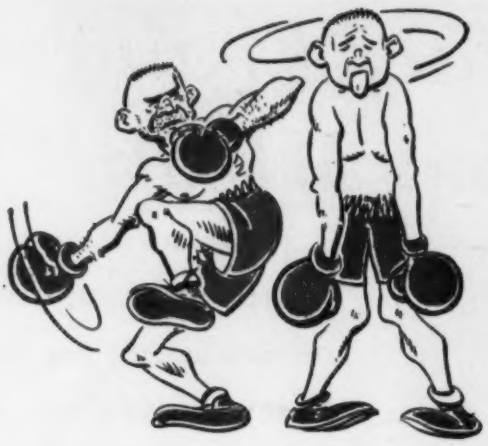

Fatigue Cracks

By Charles T. Post

Half A Century

Exactly 50 years ago the country was cleft in two schools of opinion on the question of whether the twentieth century had started or whether we'd have to wait until 1901 to get that fresh, new feeling. With the Spanish War safely in the bag, the issue seemed to be the biggest thing on the horizon at the moment.

Today we couldn't even find an argument as to whether or not we'd passed the half-century mark. We'll stick our toe over the line and state positively that we have, with no fear of violating the dictum that we avoid controversial subjects.

On New Year's Day, we reached for our dark glasses—not for the usual reason, but because it's a normal precaution in observing events that occur only once in our lifetime, like eclipses and half-century marks.

Lots has happened in this past half-century.

Men of importance, like Henry Ford II, will agree with us that the automobile is here to stay. Same goes for the airplane.

For a time it appeared that these two go-buggies would breed a race of nomads. Everyone would be on his way somewhere, with no one to guard the home fires.

Concurrently, the telephone came into its own as a popular means of communication, particularly for the ladies. With the blessings of American Tel & Tel, we figured that Mr. Bell's invention would nurture a race of sparkling conversationalists.

Now, at the half-century mark, we see more clearly than ever that nature's law of every action having a reaction is still in control. Suddenly television is sticking its big nose into our daily lives.

Instead of racing around the countryside in autos and airplanes, we seem destined to spend the next 50 years sitting at home, transfixed by watching what is going on somewhere else. Instead of gabbling at each other over the telephone, we'll be quiet as mice so as not to miss a word the funny man on the screen is saying. Conversation is on the down-hill grade, for sure, and the next 50 years will probably put us back to the days of the Indian "ugh" for small talk.

Television is putting lots of other important things into reverse, too. The number of woman-hours spent to achieve small hips has been almost as great as the mileage to the moon. This will all be undone by prolonged television sitting sessions. In another generation the girls will all be as broad of beam as the Staten Island ferry. The auto-builders who have been claiming that four could sit abreast with comfort in their new models will have to reconsider.

Things look bad for other of the finer things of life. It seems only yesterday that poetry was in its ascendancy with Gertrude Stein's immortal:

Pigeons in the grass . . .
Alas.

Were Miss Stein still with us, television would alter this lofty sentiment to:

Lady wrestlers in the mud . . .
Thud.

Our senses have been dulled to the point that many of us no longer worry over the possibility of the atom bomb wiping out civilization.

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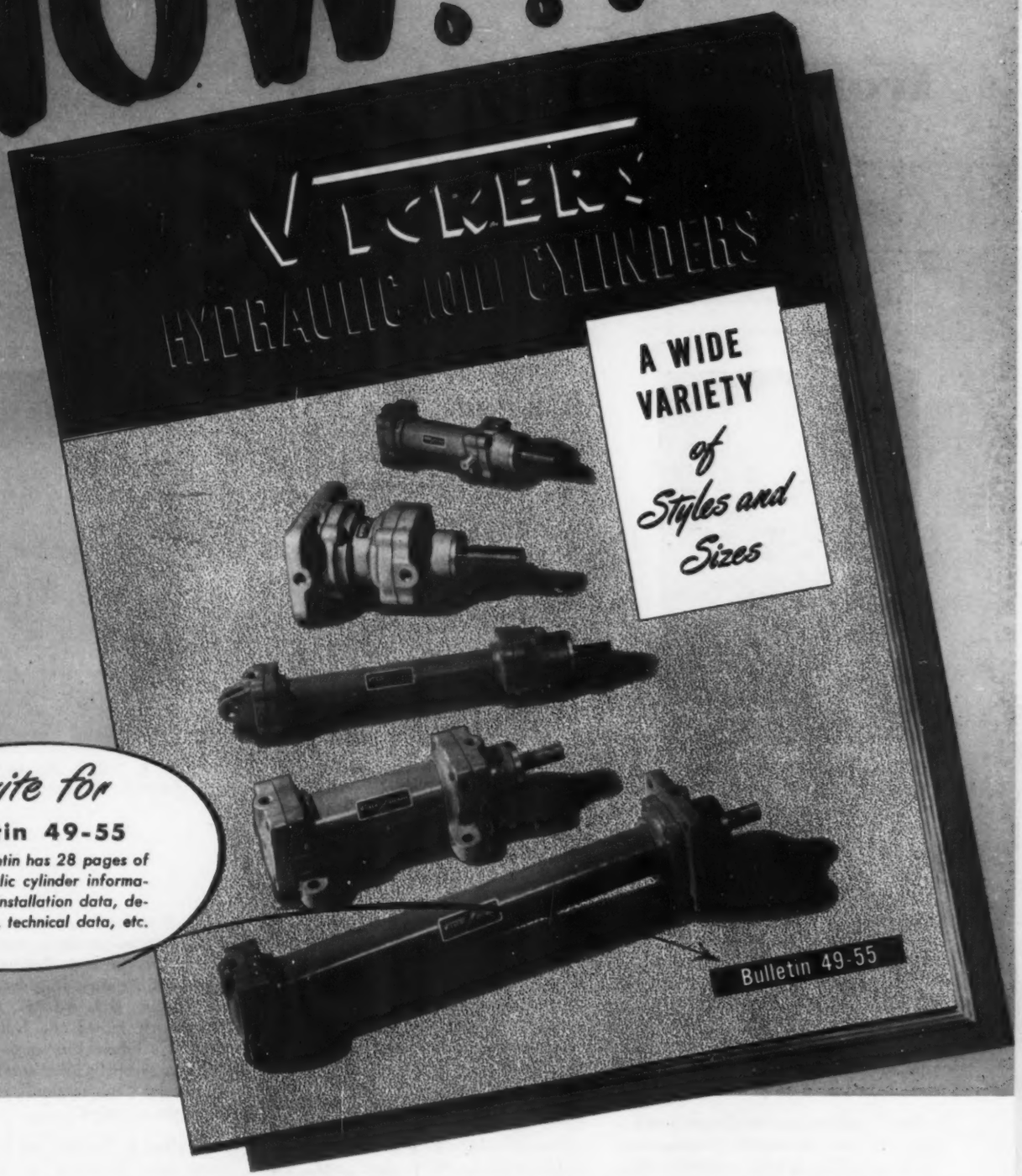
NOW . . .



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Bulletin 49-55

This new bulletin has 28 pages of useful hydraulic cylinder information such as installation data, design features, technical data, etc.

Vickers now offers a very extensive line of oil hydraulic cylinders . . . cylinders that have important improvements. Vickers Cylinders are of modern design . . . as advanced as the Vickers Pumps and Controls with which they will be used to provide better hydraulic systems. There are 12 standard bore sizes ranging from 1" to 8", and 12 standard mountings with innumerable combinations. For complete information, ask for Bulletin 49-55.

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ENGINEERS AND BUILDERS OF OIL HYDRAULIC EQUIPMENT SINCE 1921

Iron Age *Introduces*

ROBERT C. NORTON, chairman of the board, Oglebay, Norton & Co.

ROBERT T. PRING, technical director, Dust and Fume Control Div., American Wheelabrator & Equipment Corp.

W. B. SHIRK, director, Industrial Products Engineering, Gulf Oil Corp.

Robert C. Norton was elected chairman of the board of OGLEBAY NORTON & CO., Cleveland, succeeding the late **Crispin Oglebay. Alfred M. Rankin** has been named director of the company. Mr. Norton, for many years vice-president and treasurer of the company, stepped up to vice-chairman in July 1949.

Ray J. Miller has been named manager of the Research Engineering Dept. of DEARBORN MOTORS CORP., Detroit. Prior to joining Dearborn Motors, Mr. Miller had served as chief engineer and assistant director of research for the Bendix Aviation Corp., Detroit.

William H. Lehmberg has been appointed vice-president of the AMERICAN FELT CO., Glenville, Conn. Mr. Lehmberg joined the company in 1943 as chief laboratory technician.

Robert T. Pring has been appointed technical director of the Dust and Fume Div. AMERICAN WHEELABRATOR & EQUIPMENT CORP., Mishawaka, Ind. Mr. Pring was formerly a director of the Indstrial Hygiene Dept. of Kennecott Copper Corp.

Albert I. Edwards has been named basic industries machinery specialist of the Mid-Atlantic region for ALLIS-CHALMERS, Milwaukee, and **William D. Busch,** former crusher sales application engineer in the basic industries machinery department, has been appointed to the Youngstown district office as a sales representative.

L. J. Buckley has been appointed manager of the newly formed accessories department of the STEEL SALES CORP., Chicago.

W. B. Shirk has been made director of industrial products engineering in the newly-formed Product Development and Product Engineering section of GULF OIL CORP., Pittsburgh. Mr. Shirk joined the Gulf organization as a lubrication engineer in 1932. He has recently been serving as chief industrial lubrication engineer in lubricating sales.

Walker R. Young, was chosen president and treasurer of THOMPSON PIPE & STEEL CO., Denver, succeeding **J. Leslie Brown,** who died recently. Mr. Young internationally known consulting engineer was formerdy chief engineer of the U. S. Bureau of Reclamation.

John S. Shaw, director of safety of HERCULES POWDER CO., Wilmington, Del., has resigned. Mr. Shaw has been director of safety since 1941.

LOUIS GEERTS, assistant district sales manager, Republic Steel Corp.

L. A. KARG, sales manager, Tube Reducing Corp.

K. W. HORSMAN, works manager, Worthington Pump & Machinery Corp.

K. W. Horsman has been appointed works manager of the Dunellen, N. J., works of WORTHINGTON PUMP & MACHINERY CORP., New Jersey. Mr. Horsman joined Worthington in 1929 as a field engineer.

Robert A. Anderson has been appointed vice-president and works manager of the Ingersoll Steel Div. of BORG-WARNER CORP., Chicago. **Robert G. Holmes** has been appointed branch manager of the Chicago sales office of Morse Chain Co., Ithaca, N. Y., division of Borg-Warner Corp.

Ernest A. Berglund has been elected vice-president of HYDRAULIC EQUIPMENT CO., Cleveland. Mr. Berglund, before joining HYDRECO, was manager of the Hydraulics Div., Commercial Shearing & Stamping Co., Youngstown.

Louis Geerts has been named assistant district sales manager of the Eastern sales district for REPUBLIC STEEL CORP., Cleveland, succeeding **J. P. Barnum** who retired. Mr. Geerts, from 1922 to 1930, was Boston sales representative for the Union Drawn Steel Co. It was then merged to form Republic Steel Corp. and he continued with the organization.

A. R. Edwards, E. J. Goldschmidt, Jr., and **John Molloy** have been elected vice-presidents of the ARMCO INTERNATIONAL CORP., Middletown, Ohio. Mr. Edwards was formerly director of distribution for Armco International. Mr. Goldschmidt was director of finance and administrative assistant of the company, and Mr. Molloy a director of the technical division.

Jackson D. Allen, Jr., has been named general sales manager and **N. E. Willkomm** assistant general sales manager of the HAMILTON STEEL CO., Cleveland. Mr. Allen joined the Hamilton sales organization in 1936. Mr. Willkomm was formerly manager of the tubing department.

Fred C. Schulz has been appointed manager of sales development of the Associated Lines Sales division of the B. F. GOODRICH CO., Akron, Ohio. He has been succeeded as operating manager of the division by **William C. Keating.** Mr. Schulz has been with the company since 1935, starting in Cleveland as budget manager.

L. A. Karg has been appointed sales manager of TUBE REDUCING CORP., Wallington, N. J. Mr. Karg started with Timken Roller Bearing Co., Canton, Ohio, in the Steel and Tube Div. as service engineer.

M. A. McAlpine is the new assistant superintendent of merchant mills at the Harbor Works of the YOUNGSTOWN SHEET & TUBE CO., Youngstown. Mr. McAlpine moves up the ladder, succeeding **James McConnell** who recently was appointed superintendent of the mills, succeeding the late **Fred A. Schuessler.** In 1930 Mr. McAlpine joined the company as an inspector in the 10-in. merchant mill.

Frank H. Bishop has been appointed assistant to the president of ALLIED PRODUCTS CORP., Detroit. Mr. Bishop was with General Electric Corp. for 22 years. His latest position was vice-president and general manager of the Tungsten Mining Corp.

John J. Byrne has been named manager of national accounts for the southern division of MACK-INTERNATIONAL MOTOR TRUCK CORP. Mr. Byrne has been engaged in the companies sales activities for 25 years.

Gordon Winters, formerly in sales supervision work in Cleveland, will be in charge of the Oakland, Calif. branch office of TOWMOTOR CORP., Cleveland.

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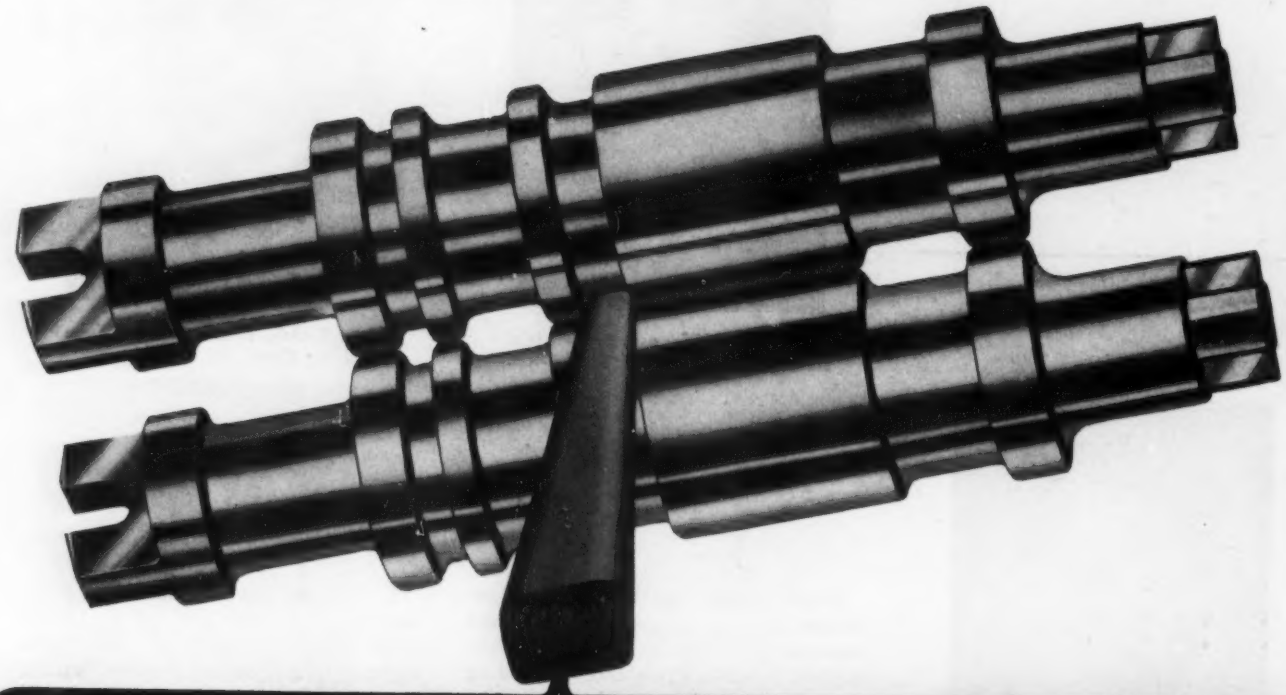
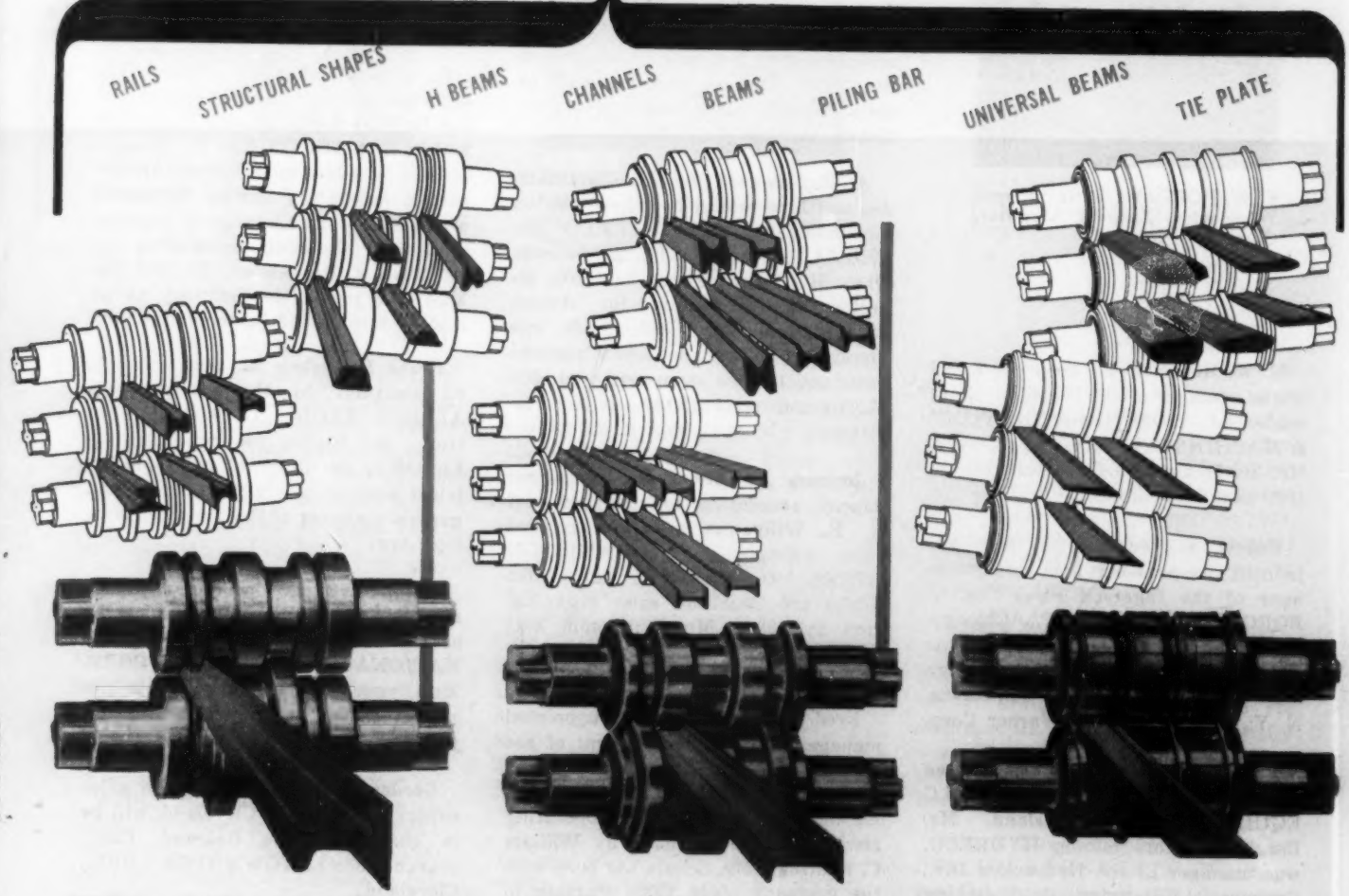
Technique for Rolling Blooms and





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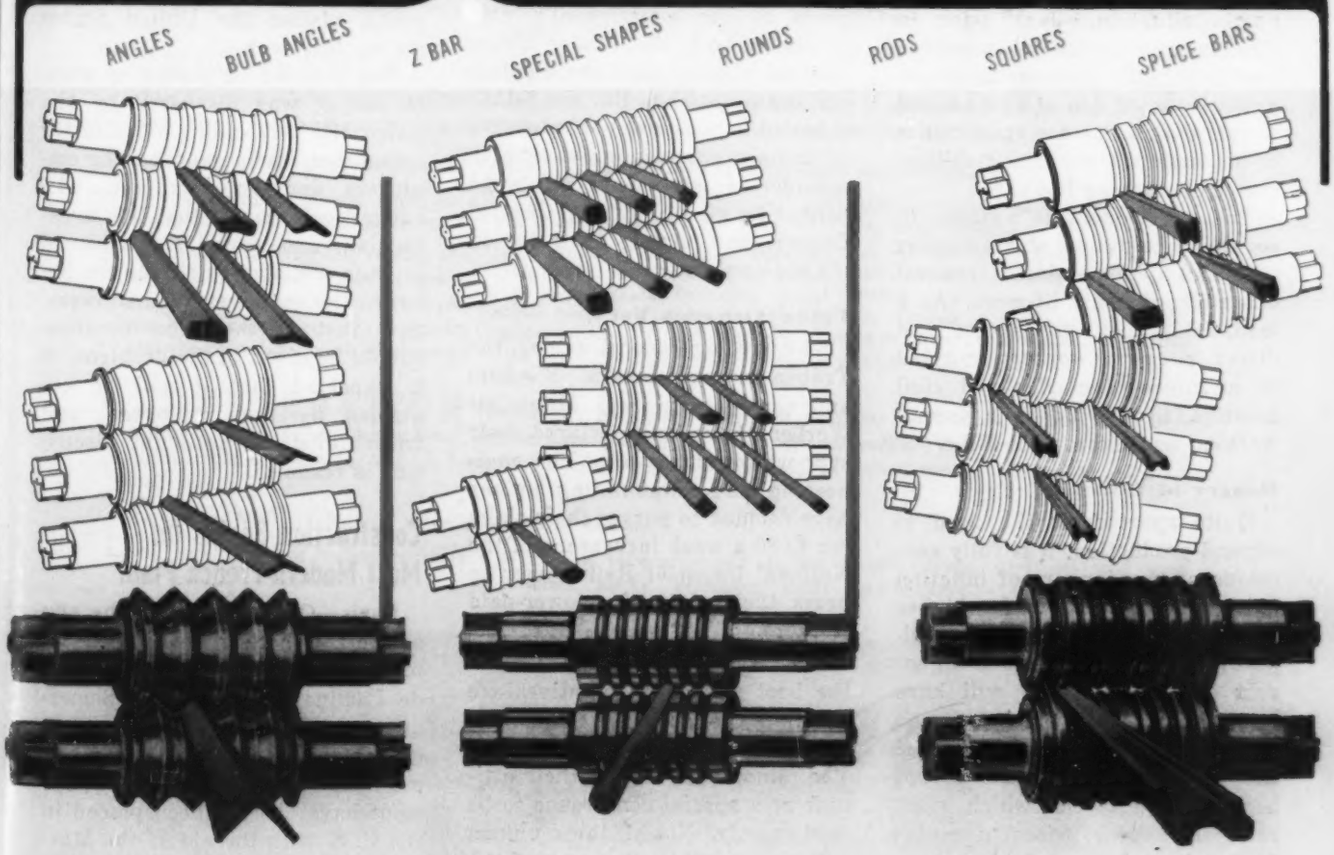

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GLOBAL LETTER

REVIEW OF WORLD MARKETS

British government now tackling knotty labor problems . . . May ask longer working hours . . . Some unions still holding out for higher wages.

London — The government is now tackling the labor relations problems rising out of the economic situation. Just prior to Christmas a series of meetings was held with representative organizations of employers and workers, at which the chief topics of discussion were wage stabilization and working hours.

The government is anxious to secure more output at no greater cost and is proposing a general extension of hours of work. As a lead, it is about to ask its own direct industrial workers, engaged in armament factories and civil aviation, to step up their normal working week from 44 to 47 hr.

Danger of Inflation

Quite apart from the need to expand production, it is fully conscious of the dangers of inflation arising from demands for higher pay. The effects of devaluation already are being felt in a higher cost of living, and will have greater impact as the months go by. The government view is that the country just cannot afford higher wage levels, which must raise the selling prices of manufactured products and hinder export expansion and recovery of the entire home industry.

At the pre-Christmas meetings, general approval in principle was given to the government's proposals by both the Trades Union General Council and the employers' organizations. But the T.U.C. is bound to be a special conference of union executives in January, to consider a statement on wage policy drawn up by the General Council and urging restraint in the national interest.

Union Attitudes Vary

The two big general unions, the Transport and General Workers and the General and Municipal Workers, have both declared their support for the policy. The engineering and shipbuilding unions have decided to pursue their claim for $2.80 a week increase, and the National Union of Railwaymen to press their claim for lower-paid workers.

Both the building unions and the boot and shoe operatives are unwilling to suspend their cost-of-living sliding scale agreements. The miners will decide their attitude at a special conference to be held shortly. Not all these unions will necessarily vote against the policy at the conference, but a considerable opposition is probable.

Holding Meetings

The General Council has been holding a series of meetings with groups of unions to discuss increased productivity. Pursuing this policy, it has invited representatives of unions in the steel foundry industry to meet its production committee to discuss the report of the steel-foundry team which visited the United States during last year.

The relation of hours of work to output was discussed by the Labor Minister's joint consultative committee, made up of leading employers and union chiefs. The committee's view is that this is essentially a matter to be considered in each industry by agreement between the employers and workers, and that further consideration should be given to the problem. It is expected that it will be examined by the employers' and trade unions before joint discussion is resumed.

Construction Begins On Most Modern French Plant

Paris—Construction on the site of the new hot strip mill and cold mill of SOLLAC (Societe Lorraine de Laminage Continu) at Semerange and Ebange, 45 miles north of Metz has begun. Orders for mechanical and electrical equipment have already been placed in the U. S. with the aid of the Marshall Plan.

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EQUIPMENT

The following products are built either to your specifications and drawings or to Treadwell's designs. The company's broad experience in serving many industries provides solutions to new problems that may arise in building special equipment.

FOR BLAST FURNACES

- Blast Furnace Flues and Ducts
- Cast Steel Ladles
- Cinder Cars
- Mixer Type Hot Metal Cars
- Open Top Hot Metal Transfer Cars
- Ore Transfer Cars

FOR OPEN HEARTH, BESSEMER AND ELECTRIC FURNACES

- Bessemer Ladles
- Billet Cars
- Charging Cars and Boxes
- Cinder Cars
- Ingot Mould Cars
- Open Hearth Ladles

FOR STEEL AND NON-FERROUS ROLLING MILLS

- Coilers and Reels for Hot and Cold Strip
- Cooling Beds
- Furnace Pushers and Tables
- Handling Tables
- Manipulators
- Mill Tables
- Pilers
- Rolling Mills
  - Billet
  - Blooming
  - Merchant
  - Cold Strip
- Tube Threading and Cutting-off Machines

FOR NON-FERROUS SMELTING AND REFINING

- Automatic Handling and Stacking Machines
- Bosh Conveyors
- Casting Wheels for Anodes and Refined Shapes
- Cast Iron Lead Kettles
- Copper Converters
- Cranes
- Holding (or Tilting) Furnaces
- Inspection Conveyors
- Ladle Tilting Equipment
- Lead and Copper Blast Furnaces
- Matte Ladles
- Mould Presses
- Mould Spraying Equipment
- Slag Ladles
- Tuyeres
- Water Jackets

FOR PROCESSING PLANTS

- Agitators
- Autoclaves
- Catalyzers
- Chlorinators
- Coils
- Concentrators
- Condensers
- Converters
- Crystallizers
- Defecators
- Dehydrators
- Dissolvers
- Dryers
- Devulcanizers
- Digesters
- Drums
- Evaporators
- Extractors
- Fusion Kettles
- Fractionators
- Heat Exchangers
- Hoppers
- Impregnating Equipment
- Incinerators
- Kettles
- Mixers
- Nitrators
- Pressure Vessels
- Pipe (Fabricated)
- Scrubbing Towers
- Soaking Towers
- Stills
- Sulphonators
- Timber Treating Cylinders
- Towers
- Vacuum Pans

FOR HYDRO-ELECTRIC PROJECTS

- Butterfly Valves
- Gate Hoists
- Lock Gates
- Penstocks
- Roller Gates
- Sluice Gates
- Standpipes
- Tainter Gates
- Trash Racks and Screens

FOR POWER HOUSES

- Breeching and Ducts
- Cranes
- Dampers
- Expansion Joints
- Stacks

GENERAL PRODUCTS AND EQUIPMENT

- Ductile Iron Castings
- Electric Furnace Alloy Iron Castings
- Electric Furnace Steel Castings
- Grey Iron Castings
- Jobbing Machine Work
- Homogeneous Lead Lined Equipment
- Ni-Hard Castings
- Steel Plate Fabrication
- Special Machinery
- Structural Steel
- Tanks for all Purposes

ENGINEERING

Treadwell engineering service is built on years of experience gained through close association with many branches of industry. Whether you are interested in one piece of equipment or a complete plant, Treadwell engineering facilities are at your service to work out the best and most economical solution.

Following are listed several types of projects on which Treadwell has recently been engaged:

- Engineering surveys and estimates for contemplated projects.
- Preliminary layouts, studies and reports for various types of industrial processing plants, for example, we have recently completed studies and complete layouts of all elements of an extensive ore dressing and processing plant.
- Layouts, design and detailing complete for construction of industrial installations, including equipment, buildings, structures, piping, instrumentation and electrical work. This usually includes complete specifications and in many cases purchasing of all materials.
- Design of equipment and operating units to suit special requirements.
- Design of buildings and structures to house customer's operating equipment.

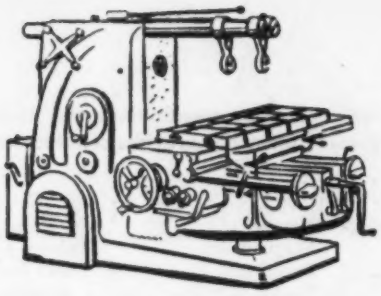
CONSTRUCTION

Treadwell construction service is available to industrial plants and public utilities. Construction "know how" derived from many years of experience enables Treadwell to do the most difficult jobs at minimum cost. A force of trained personnel insures a quick start, a speedy completion, and a job well done.

Typical construction projects recently completed include:

- Installations of boilers, turbines and auxiliary equipment.
- Design, fabrication and erection of tanks, stacks, breeching, ductwork, piping, structural steel work and bunkers.

TREADWELL



MACHINE TOOL High Spots

SALES, INQUIRIES AND PRODUCTION

by William A. Lloyd

Industry moves into New Year with steadily rising demand and a new policy on renegotiation.

Cleveland—Machine tool builders moved into the first quarter of a new year this week with a pair of new and substantial assets, a new policy on military renegotiation exemptions, handed down last week by the Secretary of Defense, and a steadily rising demand for new equipment.

December order volume, according to preliminary estimates, was the highest of any month of 1949. Placements by automotive producers, steel equipment makers, and general replacement buying culminated in a surge of ordering that continued through the holiday period in some areas.

Prospects Look Good

In Detroit the usual post-holiday period of hesitation has set in after a month of better-than-average activity. A survey of local machine tool suppliers indicates that a few concerns operated at better than 1948 levels during 1949. The majority, however, have shown decreased volume this past year although it is reported that activity here has been generally better than the national average.

Most local firms will open 1950 with high expectations. Ford placements for its automatic transmission plant at Cincinnati are continuing. There has also been some Ford buying for product improvements. Some of this new equipment it is reported, will be employed for the Ford 6-cylinder engine.

It is now anticipated that Chrysler will at least make some commitments before Jan. 15 on its new high compression engine to be built at Chrysler-Jefferson. Earlier it had been anticipated that all placement would be made by the middle of January.

Studebaker orders for its new high compression power plant have just about been completed, it is believed. At the moment, General Motors' divisions are quiet but there has been a marked improvement in buying for tool and die shops, according to Detroit trade sources.

With few exceptions, Detroit's machine tool representatives and manufacturers are looking forward to a satisfactory year in 1950. Only a major change in the plans of auto producers during the year, it is believed, will hold total volume of new business below the 1949 level for most local suppliers.

Renegotiation Rules Revised

But the industry's biggest lift in a long time came from the fact that the Federal Register of Dec. 21 reported that the Secretary of Defense had announced that the following subcontracts shall be exempt from renegotiation:

"The sale, furnishing, or installation, of machinery, equipment or materials used in the processing of an end product or of an article incorporated therein, provided such machinery, equipment or materials do not become a part of such end product or of an article incorporated therein.

"The sale, furnishing, or installation, of machinery used in the processing of other machinery to be used in the processing of an end product or of an article incorporated therein.

"The sale, furnishing, or installation, of component parts of, or subassemblies for, machinery included in (2) above, and machinery, equipment and materials included in (1) above.

"The performance of services directly required for the performance of subcontracts included in the above.

Limitations Are Cited

"This exemption applies only to subcontracts made subject to the Renegotiation Act of 1948 by Section 3 of Public Law 547, 80th Congress, or made subject pursuant to the provisions of Section 401 of Public Law 785, 80th Congress, or made subject by Section 622 of Public Law 434, 81st Congress.

"This exemption does not apply to subcontracts where the purchaser of such machinery, equipment, or materials, has acquired them for the account of the government. As used herein the phrase, acquired them for the account of the government, means acquired pursuant to an arrangement between the government and the purchaser of such machinery, equipment, or materials, whereby title to such machinery, equipment, materials will, or may, at the option of the government, vest in the government."

Demonstrates The Sound Engineering Design of

NIAGARA

POWER SQUARING SHEARS

● There is no compromise with sound, proven engineering when it comes to NIAGARA shear design and construction.

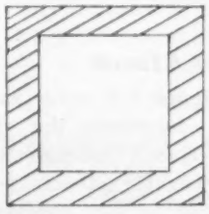
Accurate cutting depends primarily on rigidity of the shear's components.

For bed, crosshead and holddown NIAGARA uses CLOSED BOX SECTIONS to resist with minimum deflection the horizontal, vertical and diagonal or torsional loads to which every shear is subjected.

NO OTHER SECTION WILL DO THIS JOB AS EFFICIENTLY.

Angle or channel shaped sections have long since been abandoned for use on NIAGARA Power Shears.

The economy of quality is remembered long after price is forgotten.



BED, CROSSHEAD & HOLDDOWN DESIGN

NIAGARA MACHINE AND TOOL WORKS, BUFFALO 11, NEW YORK

DISTRICT OFFICES: DETROIT, CLEVELAND, NEW YORK

FREE — USE POST CARD

PUBLICATIONS

New publications that describe money saving equipment and services are available free and without obligation. Copies can be obtained by filling in the attached card and mailing it.

Air-Operated Press

Information on the design, dimensions, and capacities of Hannifin air-operated arbor presses is given in 4-p. folder. Capacities up to 18 tons are available for production, assembly, forming, bending, molding, staking, pressing, marking, riveting, and other operations. *Hannifin Corp. For more information, check No.* 1 *on the postcard.*

Fiberglas Insulations

The Owens-Corning Fiberglas for industrial insulating applications is described in a 16-p. brochure through use of photos, specifications and tables. Data on thermal conductivity and sound absorption properties are included. *Owens-Corning Fiberglas Corp. For more information, check No.* 2 *on the postcard.*

Impulse Timer

An impulse timer without gears and clutch that provides impulse circuit for elevator starting; production line control; pilot circuits; on-off circuits for exhaust fans, mixing, and molding machinery; and laboratory testing are illustrated in 4-p. bulletin. *Zenith Electric Co. For more information, check No.* 3 *on the postcard.*

Baling Presses

Heavy duty horizontal hydraulic balers for metal working plants, scrap yards, steel mills, large industrial plants; and one-stroke vertical balers for salvage plants, bag dealers, rubber salvage, packing and industrial plants; are described and illustrated in 4-p. catalog. *Apex Steel Corp. Ltd. For more information, check No.* 4 *on the postcard.*

Locking Set Screw

A new data sheet describes and illustrates the Zip-Grip self-locking set screw and adjusting screw and includes data on sizes, heads, and metals available. *Set Screw & Mfg. Co. For more information, check No.* 5 *on the postcard.*

Electric Drill Kits

Electric drill kits that include Zephyr model portable electric drill and various attachments for buffing, cleaning, polishing, sanding, tool grinding, and other operations are described and illustrated in 4-p. bulletin. *Portable Electric Tools, Inc. For more information, check No.* 6 *on the postcard.*

Compression Distillation

A method to obtain pure, sterile water without appreciable use of heat by compressive distillation is described in 4-p. pamphlet listing the theory, development, and practical industrial applications. *Arthur D. Little, Inc. For more information, check No.* 7 *on the postcard.*

Space Heaters

How plants can circulate fresh, clean, tempered air through use of Dravo Counterflo warm air space heaters is described in 6-p. bulletin. *Dravo Corp. For more information, check No.* 8 *on the postcard.*

Electronic Controls

Forty-five case studies illustrating methods of cutting production costs through use of electronic controls are presented in 62-p. booklet. *Photoswitch, Inc. For more information, check No.* 9 *on the postcard.*

Press Clutch

Designed for power savings and faster response, the Tornadyne press clutch, claimed to deliver more working strokes per day, is described in 4-p. catalog through use of photos and a full-color cross-section. *Clearing Machine Corp. For more information, check No.* 10 *on the postcard.*

Chemical Pumps

Worthite, a corrosion-resistant metal, and a complete explanation of the mechanical seal designed to

Turn to Page 394

SWINDELL-DRESSLER

Recirculating Radiant Tube

ANNEALING FURNACES

One of many fine-performance features: the unique Swindell-Dressler *high velocity* burner, which gives better, more uniform distribution of heat in the tube . . . and very exceptional tube life with coke oven gases (2 to 3 times normal). *May we consult on your needs?*

SWINDELL-DRESSLER *Corporation*

Designers and Builders of Modern Industrial Furnaces

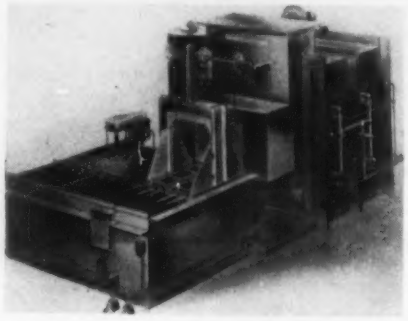
PITTSBURGH 30, PENNA.

NEW

PRODUCTION IDEAS

Continued

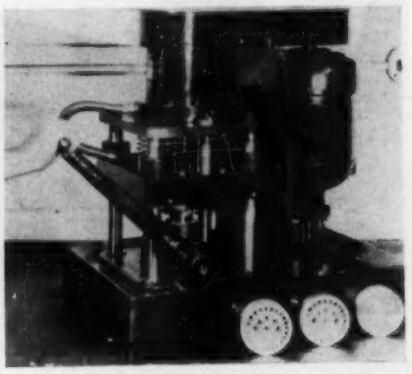
high convection for fast heating, positive passage of atmosphere through the work, simplified construction of alloy components, and trays designed specially for quench-



ing. Fans and radiant tubes are mounted for easy accessibility when maintenance is required. The generator is separate from the furnace, but close coupled so the generated gas does not cool and reverses chemically before entering the work chamber. The furnace illustrated can be used for water quenching or Martempering. The units are also supplied with vestibules for quenching from gas atmosphere, and are available in a wide range of capacities. *Industrial Heating Equipment Co. For more information, check No.* 23 *on the postcard on p.* 37.

Drilling Machine

The Jig Driller is a drill jig converted into a drilling machine and is said to satisfy the need between standard single spindle drilling machines and special purpose drilling machinery. It consists of a four-post pump type drill jig on which is mounted a standard Zagar gearless drill head with a hole pattern to suit the part being drilled. In the middle of the jig is a bushing plate that holds the various drill bushings and the locators for the parts being drilled. By the operating handle parts are fed into the drills through the standard rack



and pinion mechanism as provided in the drill jig. *Zagar Tool Inc. For more information, check No.* 25 *on the postcard on p.* 37.

Combination Drill-Tap

New Mohawk precision tool that drills and taps through-holes in one operation is available in 16 standard sizes from .201 to .6875-in. drill sizes and ¼ to ¾ NC and NF tap sizes. The drilling flutes are greater than the root diam of the tap and are circle ground their entire

length. As the drill completes the hole it serves as a pilot for the start of the tap. As the drill becomes dull and end sharpening is necessary the tapping flutes are ground off an equal amount to retain drill clearance. Such sharpening can be repeated the entire length of the tool. *Mohawk Tool Co. For more information, check No.* 26 *on the postcard on p.* 37.

Workholding Tool

Savings in setup and make-ready time are claimed for a new workholding device, In-R-Tool, that can be quickly used in lathes, vises, boring mills, on machine tables, in fixtures, electric drills and drill presses. The precision tool holds narrow tolerances. The center member is an arbor within accurate limits. Cores, and pressure mem-

Turn to Page 422

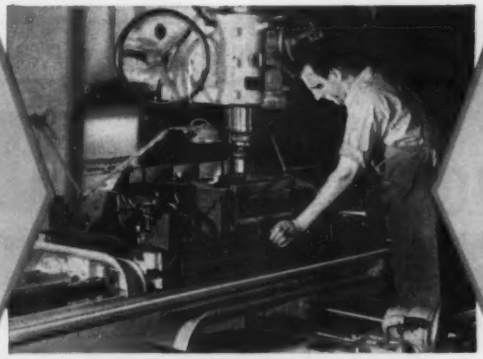
Automatic Shear Line

Coil stock can be flattened and cut to any length at approximately 300 fpm on a new, simple shear line. Designed for moderate production in steel, brass and copper mills, warehouses and fabricating plants, the complete line consists of a coil stop, payoff reel, roller leveller, looping table, up-cut shear, gage table and automatic gage unit, oiling unit, pinch rolls and sheet piler. Coils are stored on an inclined ramp and are released to the line, one at a time, through one cycle of the coil stop which delivers the coil to the payoff reel. A hydraulic lift raises the coil to centering position and the end is manually entered into the leveler. Sheet metal undergoes flattening and straightening in the multiple work roll leveler. The coil strip is automatically carried to the up-cut shear that is actuated by a limit switch trip shoe, mounted on a shear gage. From the shear the sheet travels over the runout conveyer until the end of the sheet strikes the shear gage stop, positively stopping the end which is to be cut off and allowing the following strip to build up a loop on the looping table. After shearing the sheet travels through the oiler and pinch rolls, by which it is fed to the piler. The piler is operated by hand valves. *E. W. Bliss Co. For more information, check No.* 24 *on the postcard on p.* 37.

FOR TODAY'S ALL-IMPORTANT NEED:

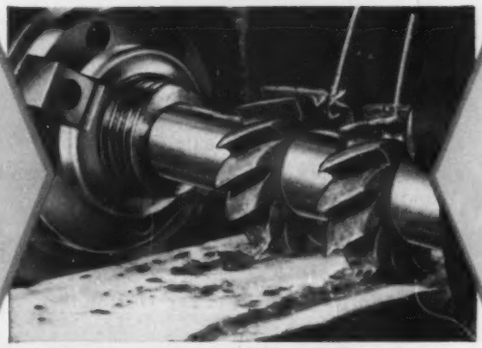
Productivity with Economy

Pratt & Whitney PRECISION MACHINE TOOLS



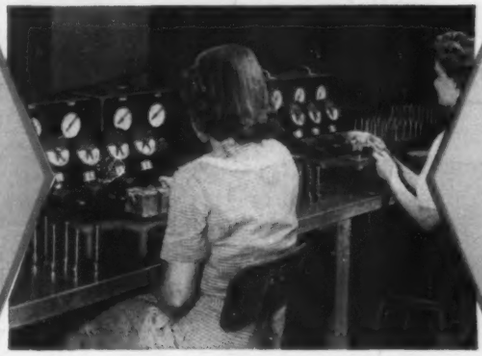
JIG BORERS — JIG GRINDERS — DIE SINKERS — KELLER MACHINES — AUTOMATIC DUPLICATING MACHINES — TOOLROOM LATHES — BENCH LATHES — BENCH MILLERS — AUTOMATIC LATHES — AUTOMATIC CENTERING MACHINES — THREAD MILLERS — VERTICAL MILLERS AND PROFILERS — VERTICAL SHAPERS — VERTICAL SURFACE GRINDERS—GEAR GRINDERS — CUTTER GRINDERS — KELLER-FLEX FLEXIBLE SHAFT MACHINES — DIAFORM WHEEL FORMING ATTACHMENTS

Pratt & Whitney PRECISION CUTTING TOOLS



TAPS — REAMERS — MILLING CUTTERS — END MILLS — CARBIDE CUTTING TOOLS — FORMED CUTTERS — INSERTED BLADE MILLING CUTTERS — DRILLS — DIES — SCREW PLATES — THREADING TOOLS — BLUE HELIX REAMERS — DIE SINKING CUTTERS — DUOCONE DIES — KELLER CUTTERS AND TRACERS — CARBIDE BURS AND DI-BURS

Pratt & Whitney PRECISION GAGING TOOLS



HOKE AND U. S. A. GAGE BLOCKS — TOOLMAKERS FLATS — CYLINDRICAL PLUG AND RING GAGES — THREAD PLUG AND RING GAGES — ROLL THREAD SNAP GAGES — ADJUSTABLE LIMIT SNAP GAGES — MEASURING MACHINES — SUPERMICROMETERS — ELECTROLIMIT COMPARATORS — AIR-O-LIMIT COMPARATORS — ELECTRO-MECHANICAL LEAD TESTERS — MULTIPLE ELECTRIC CONTACT GAGES — MILL GAGES

Pratt & Whitney

Division Niles-Bement-Pond Company
WEST HARTFORD 1, CONNECTICUT

Here are the *right* Tools for competitive 1950. Every Machine, Gage and Cutting Tool listed on this page is designed and built to famed P&W standards of precision, workmanship and performance — to turn out better work, and more of it at lowest cost per unit.

"There's no better paying investment than the Right Tools for the Job"

On the ASSEMBLY LINE

AUTOMOTIVE NEWS AND OPINIONS

Chevrolet introduces its new Powerglide automatic transmission . . . Converter made entirely of stampings . . . Nash will add a light car . . . More details on Chrysler models.

by Walter G. Patton

Detroit — The new automatic transmission introduced this week by Chevrolet is an important milestone in automotive history. Chevrolet's new "Powerglide" unit is the first automatic shifting device in the low priced field. More than 12 years of GM experience with torque converters preceded its introduction. During the past four years GM Research and Chevrolet Engineering have cooperated in developing a unit that is designed for high volume production.

The new Powerglide transmission is an outstanding example of GM research - engineering - manufacturing teamwork. The original design was developed by GM's Product Study Section, headed by Oliver Kelly. The same group of engineers is credited with the development of GM's Hydra-Matic drive.

Built of Metal Stampings

Several years ago, the transmission was turned over to Chevrolet under Chief Engineer, Ed Kelly. Members of the manufacturing staff were assigned to work with Chevrolet engineers on the project. The GM Product Study Group has continued to serve in an advisory capacity.

One result of this cooperative effort has been an unusually exhaustive study of fabrication and manufacturing details. Except for a few parts, including valve bodies, the converter is made entirely of metal stampings which are joined together by copper brazing, in a hydrogen atmosphere. A new plant has been opened at Cleveland and manufacturing departments have been set up at Flint to produce the new transmission parts and assemblies.

Uses Fluid Coupling

The new unit has five major converter components, a planetary gear set and necessary controls. The gear set provides for reversing the car and may be used for emergency low gear.

The hydraulic torque converter consists of a primary pump, secondary pump, turbine and primary and secondary stators. Each element is a vaned wheel made from many steel stampings, spot welded and copper-brazed into an assembly. A pressed steel housing encloses the converter.

Unlike the Packard Ultramatic which locks mechanically into direct drive, the Powerglide will drive through a fluid coupling. Fluid coupling drive is also used by Buick and Chrysler.

Hp Stepped Up

A unique feature of the Chevrolet unit is an overrunning coupling which operates inside the torque converter. This unit provides immediate engine braking when the driver's foot is raised from the accelerator. It also permits low speed push starting at 12 mph of a stalled car.

The outer enclosure of the torque converter section is a gray iron casting. Chevrolet is balancing the primary pump and torque converter housing as a unit within ¼ inch-ounce.

Adjacent wheels in the converter differ slightly in number of vanes to avoid resonant vibration. The number of oil seals has been held to a minimum.

As compared with a conventional 95 hp engine, the powerplant for a 1950 Chevrolet equipped

with an automatic transmission has been increased to 105 hp. The new engine has a larger piston displacement, higher compression ratio and greater volumetric efficiency. Hydraulic valve lifters are specified.

Other departures in engine design include a larger exhaust system and a radiator having a greater cooling capacity than the standard car. A radiator pressure cap and oil cooler for the transmission are also used.

A special gear ratio of 3.55 to 1 is furnished in place of the conventional 4.11 to 1. In the chassis frame, the second cross member has been relocated 2⅝ in. to the rear. Dimensions of cross members and braces differ slightly from conventional cars.

The entire transmission package weighs approximately 130 lb. Heavy duty front springs are used to support the additional weight.

Performance Is Listed

Chevrolet engineers report that a car so-equipped will start somewhat faster than a conventional Chevrolet car that is started in second gear. Top speed is reported to be 6 to 8 miles faster than a standard Chevrolet.

Although no official gasoline economy claims have been made, automotive engineers familiar with the new design believe the average car owner should get as good or better mileage than is now available with a standard transmission not equipped with overdrive. Mileage in city driving, it is reported, may be slightly less than at present but this should be offset by a saving in fuel requirements for country driving.

Using New Carburetor

In addition to eliminating any tendency to "free wheel" when the throttle is released, Chevrolet engineers believe the new controls will prove more positive and trouble free than those employed on some other types of automatic transmission. The reverse and low gear planetary unit is unusually compact—all of the necessary gears can be held in one hand.

LATEST "BETTER-BUILT" BUICK: Shown here is the six-passenger four-door Super sedan in the 1950 line of Buick cars. The new Buick has a more powerful engine, a reinforced chassis and a completely new body by Fisher. The windshield is one-piece construction. Although shorter overall than the predecessor model, the wheelbase is practically identical with the 1949 Super.

Chevrolet is using a new carburetor on both of its engines. It has introduced a new concentric float bowl designed to eliminate any fuel starvation regardless of sudden stops or the level of the road. By "bedding" the metering jet in cooler fuel, the possibility of vapor lock has been minimized.

A new drain has been installed to prevent gasoline stains on rear fenders. Ventipanes have been modified to reduce wind roar. A whistle on the gas tank blows to warn attendants against overfilling.

The radiator grille has been redesigned. Bumper guards are higher and stronger. Tail lamps are more readily discernible from the side and "T" handle of the rear deck has been replaced by a new stationary handle.

Chevrolet also expects to market its luxurious, hardtop convertible, the Bel Air, first announced at the Waldorf Show last January.

Nash Planning Economy Model In Low Price Field

H. C. Doss, vice-president in charge of sales, has confirmed reports that Nash "plans to broaden its Airflyte line of cars by the introduction in 1950 of the first models of an entirely new series as an addition to its present Statesman and Ambassador series."

The new Nash entry will be strictly an economy model, having a shorter wheelbase than the present models. Progress of this new model in the face of competition from Chevrolet, Ford, Plymouth—and the new K-F lightweight car will be watched with considerable interest.

New Chrysler Restyling Details Feature Simplicity

Additional restyling details of the new Chrysler line of cars are now available.

In the new Chrysler models, for example, the license plate assembly has been removed from the middle of the deck lid. The license plate bracket is framed in the middle of the rear bumpers, with small lights in each bumper guard illuminating the plate. The stop lights are mounted on the crown section of each rear fender. A new turn indicator switch prevents the combined tail and turn signal lights from operating on the side where the turn signal is flashing.

The new and lower grille is a die casting incorporating three horizontal chrome bars, topped by a fourth bar. There are seven vertical bars spaced between the second and bottom horizontal bars.

The chrome fender molding has been lowered on the 1950 cars, accentuating the low appearance of the 1950 models.

AUTO-LITE *announces...*

Tune in "Suspense!" — CBS Radio Network Thursdays — CBS Television Tuesdays

The new Auto-Lite plant at Lockland, Ohio, one of the largest manufacturing plants in the world, devotes a part of its 3,500,000 square feet of floor space to precision die casting.

Increased production facilities for

DIE CASTINGS

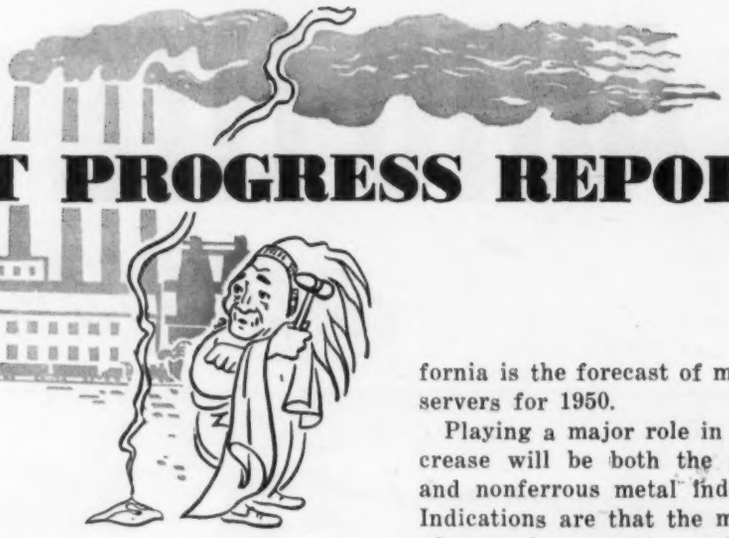
● **Here is important news for everyone who has need of the accurate, reliable die castings made possible with the famous Auto-Lite "controlled metals" processes. The opening of the great new Lockland plant of Auto-Lite, combined with the enlarged facilities at Woodstock, Illinois, greatly increases Auto-Lite's ability to furnish the high quality die castings for which the Auto-Lite name is known wherever die castings are used. We invite your inquiries.**

THE ELECTRIC AUTO-LITE COMPANY
Die Casting Division, Woodstock, Illinois

600 S. Michigan Avenue
Chicago 5, Illinois

723 New Center Bldg.
Detroit 2, Michigan

AUTO-LITE MEANS PRECISION MANUFACTURING



WEST COAST PROGRESS REPORT

Steel production for 1949 falls about 21 pct below forecast of year ago . . . Fabricators expected to increase prices.

Digest of Far West Industrial Activity

by J. Reinhardt

San Francisco—In spite of the 42-day strike and a buying slump early in 1949, West Coast steel producers turned out almost as many tons of finished steel during the year as in 1948.

Actual production of finished steel in the 7 western states for 1949 was 2,376,813 net tons according to a confidential survey conducted by THE IRON AGE. This total was 638,187 tons short of the estimate made by this publication in January of 1949. Approximately 270,000 tons of this differential may be accounted for by losses during the strike and the remaining 368,187 tons can only be accounted for by lower production rates than producers estimated at the start of the past year.

Finished Steel Production

Actual finished steel production in the western territory was reported at the end of 1948 as having been 2,652,917 net tons.

Although production forecasts for 1950 have not been completed, there is every indication that producers anticipate schedules which will at least equal the 1949 forecast. With completion of Bethlehem Pacific's new 75-ton electric furnace in Los Angeles some time in the first quarter and operation of Kaiser Steel Corp.'s hot strip mill and pipe mill at Fontana soon after the first of the year, these additional facilities will materially contribute to increased production of finished and semifinished products.

No other major production expansions or new installations are apparent for this year although it is probable that the cold-reduction mill of Columbia Steel Co. at Los Angeles will get underway before the year's end.

Industrial Expansion Expected to Continue for 1950

Los Angeles—Continued expansion in industry for southern California is the forecast of most observers for 1950.

Playing a major role in the increase will be both the ferrous and nonferrous metal industries. Indications are that the majority of expansions, next year will come from small plants, including many metals facilities.

Increased facilities of steel companies and of copper and brass concerns are expected to bring more small parts manufacturers into the area to absorb some of the growing demand by the automobile industry here. Recent increases in auto assembly facilities and in the availability of basic metals is expected to draw many more parts manufacturers to the area. This is typical of the expected 1950 trend.

Industrial Expansion Continues

Los Angeles Chamber of Commerce estimates of new plant expansion for industry in Los Angeles County during 1949 hit the $90 million mark. Biggest chunk of this is in the Lever Brothers' $25 million plant which is being built by Bechtel Corp. More than 10,000 new factory jobs were created during the year. No such large industries are anticipated in 1950, but overall expansions are expected to total between $60 and $70 million. In 1948 expansion totaled $72 million.

One of the biggest contracts for steel construction men probably will be a new Statler Hotel which is expected to be started this year. Hotels and similar business buildings are not counted in the industry expansion figures.

During 1949, Revere Copper & Brass opened its western plant, adding to the metal available here through Phelps-Dodge Corp. The

Hyde Park . . .

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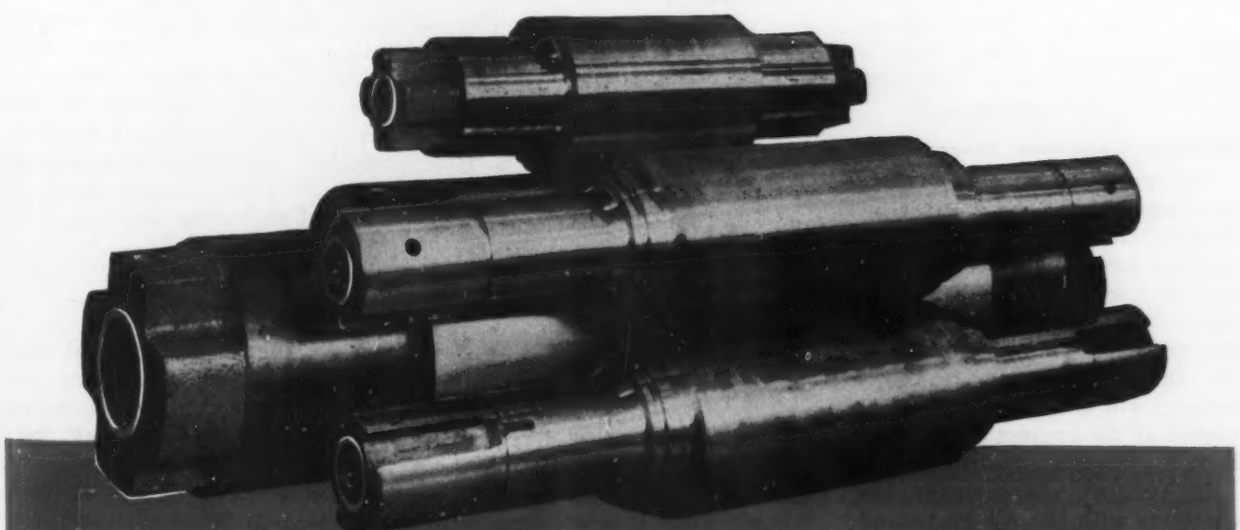

HYDE PARK FOUNDRY AND MACHINE CO.

Hyde Park, Pa. (Pittsburgh District)

TAKING TIME OUT: With 122 years service behind them, three Bethlehem Pacific Steel executives turn their backs to the clock during a recent meeting held in San Francisco. Left to right: C. P. Desmond, assistant treasurer, Los Angeles, 40 years service; E. F. Gohl, vice-president, San Francisco, 42 years service; and L. G. Knight, assistant treasurer, Seattle, 40 years service.

American Brass Co. has purchased a site and probably will begin work on a new plant here, increasing the competition and making plenty of western nonferrous metal available for manufacturers of auto and air parts and similar items.

Steel Capacity Increased

The Kaiser Steel Corp. recently blew in its second 1200 ton blast furnace and will complete work early in the year on other expansion projects including new pipe mill facilities.

Bethlehem Pacific will have its second electric furnace here in operation by mid-year. It has three openhearths and will have a capacity of 300,000 net ingot tons, making it the second largest steel plant on the Pacific Coast.

Its expansion includes a 12-in. mill and a billet heating furnace for it and 16,000 sq ft additional space for a nut and bolt unit.

Aircraft Contracts Assured

Continued government contracts seem assured for the aircraft industry, one of southern California's largest industries. Typical is Lockheed Aircraft Corp. where president Robert E. Gross has revealed that present orders for the Constellation transport aircraft will keep the company occupied at the present rate for at least a year and a quarter.

In addition, the company has contracts with the Air Force and Navy amounting to $185 million bringing the total backlog at the year end to $250 million.

The commercial backlog of $45 million is at the highest level for Lockheed since just after the close of the war.

Aircraft valued at more than $115 million were delivered by Lockheed to military and commercial customers this year. The company now employs 18,000 persons.

During 1950, Lockheed will start deliveries on the first F-94 all-weather night fighters.

The company's current production line includes the Constellation, the F-80 fighter, the T-33 two place jet trainer and the Navy P2V.

Steel Fabricators Expected To Pass Along Price Increases

Los Angeles — Although few changes have been effected as yet, first indications here are that steel fabricators will begin raising prices for their jobs next month to pass on the increases in material costs to the customers.

Most major companies in this area are using materials ordered and absorbing whatever price increases are necessary at this time. Many of them had large stocks on hand. They expect to make a decision shortly on how much of the steel price increase will be passed on to the customer.

To Pass On Increase

Most fabricating officials are watching for someone to make the first move, but their conversations indicate that they will try to pass on most of the increase in their costs to the customer.

What the effect will be on the market as a result of that remains to be seen.

Fabricators engaged in the building business are worried that with their prices increased, contractors trying to keep costs low will use other materials for smaller structures, eliminating the use of steel reinforcing as much as possible.

Competition a Factor

"They may want to build our kind of building, but the customer's pocketbook may cause us some loss of business. Our margin of profit is too low for us to absorb the increased cost of materials," one of the spokesmen commented.

Competition has been a definite factor in the steel fabricating business here for many months now and will be the chief factor considered in price decisions.

Plans New Switchyard

Los Angeles — Southern Pacific R.R. is planning a new switchyard and line to shortcut materials to the Los Angeles harbor area and shipping docks.

SP is closing contracts for right of ways which would find it constructing a major switching yard at Puente, about 10 miles east of Los Angeles, and building a rail line direct to the harbor without going into Los Angeles with freight from southern areas.

A Southern Pacific subsidiary, Pacific Electric, has been petitioning for several months to pull up its rails along several score of miles of rightaway and switch to buses.

Northrup Reports Earnings

Los Angeles — Unaudited net earnings of $404,600 were reported for the 3 months ended Oct. 31 by Northrop Aircraft, Inc. This is equal to 90¢ a share.

Backlog as of Oct. 31 last amounted to $65,800,000 as compared with $89 million a year earlier. Contracts for military production make up 85 pct of the backlog.

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THE FEDERAL VIEW

THIS WEEK IN WASHINGTON

Washington officialdom view the 1950 business outlook . . . Major legislative changes expected . . . Government changes its attitude toward business.

by Eugene J. Hardy

Washington—The business outlook for 1950 is good. This is the general view of most of Washington officialdom. Optimism, of a cautious sort, pervades the atmosphere.

More important, perhaps, is the feeling that neither President Truman, nor the Congress, will be hell-bent-for-leather with a lot of wild schemes designed to frighten business and further weaken public confidence in the business community's long-range prospects. This is held to be true if for no other reason than the fact that 1950 is a Congressional election year with all members of the House up for re-election and many vital Senate seats at stake.

Will Plug "Fair Deal" Program

Whether motivated by politics or any other force, it appears reasonably certain that while Mr. Truman will continue to plug for his "Fair Deal" program of socialistic measures, the wind-mill tilting of the past 2 years will be soft-pedaled in 1950.

For example, on the subject of taxation, a reduction in some of the wartime excise taxes is almost assured. While there may be some corresponding boosts in other levies to offset the loss of revenue, it is most unlikely that Mr. Truman will insist on increases that will affect the bulk of the voting public.

Will Strive for Efficiency

Democratic hedging on higher taxes is already blossoming, as indicated by recent statements that plugging of all loopholes in the tax laws would balance the budget. Business demands for more liberal depreciation allowances, taxation of cooperatives and other changes in the corporate tax structure will be considered by Congress and if legislation should result, it is not likely to be vetoed by Mr. Truman.

The real attack on actual and anticipated federal deficits will come in an attempt to prune down appropriations and strive for further efficiency in government operations. This is evidenced by the determination of Democratic Congressional leaders to come up with a single - package appropriations bill. This method will enable Congress to look at the budget picture as a unit rather than a number of scattered bills each with its own special pork-barrel provisions. In addition, Democratic leaders have indicated that about a dozen bills to carry out the recommendations of the Hoover Commission on reorganization will be passed.

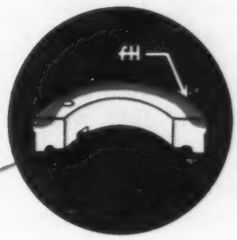
Taft-Hartley repeal has been given up by the Administration for this session, bearing out earlier predictions that the White House would prefer to have this law as a primary issue in the Congressional elections. New antitrust legislation will undoubtedly crop up in both Senate and House. The only serious contender for passage is the 20-year old proposal of the Federal Trade Commission that firms be barred from acquiring the physical assets of competitors.

Will Schedule Major Measures

Also on the subject of antitrust legislation, Congress should take some action to straighten out the uncertainties surrounding the legality of delivered prices and freight absorption. The push behind such legislation is now motivated by the oil industry, since it is hoped that the steel industry muddle will be dissolved by means of FTC acceptance of the industry's proposed consent order.

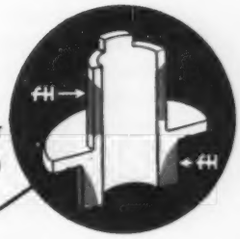
Other major measures likely to get through Congress include social security expansion, already ap-

oil pump valve



clutch adjusting nut

drive shaft



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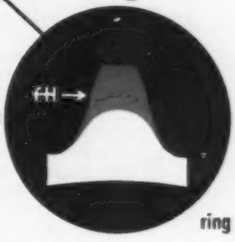
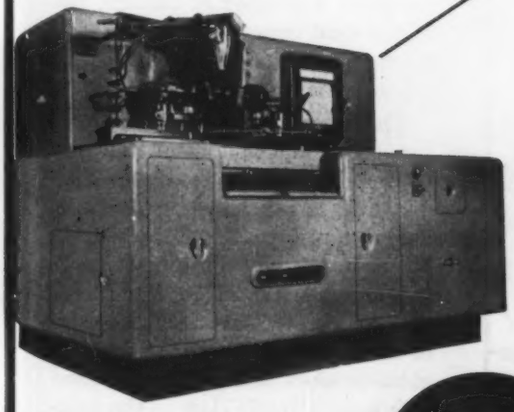


ring gear



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proved by the House; the Point Four plan for aiding underdeveloped areas of the world; and extension of federal rent controls, these would probably die if 1950 were not an election year.

Farm Plan Appears Dead

A strong fight will be made for the Administration's compulsory health insurance program, but the opposition is gaining strength rapidly, largely as a result of reports coming from England on experiences with the system in effect in that country. This opposition will come from both parties. Final passage in 1950 looks doubtful.

The Brannan farm plan appears dead and the present flexible program of farm price supports will remain in effect.

The Senate will get into a lease-busting fight over so-called civil rights legislation. The main drive will be for enactment of a permanent Fair Employment Practices Commission. Sparked by the White House and congressional exponents of the Fair Deal, the forcing of this hot issue could go a long way toward driving southern Democrats and Republicans into what could be a permanent political alliance.

Both Houses will whoop through a batch of rivers, harbors and other public construction bills, maybe even going so far as to extend housing legislation to cover medium-priced homes, in a final attempt to please their constituents before a July adjournment. It's hard to see how any development short of war could hold the lawmakers in session beyond mid-summer, as contrasted to the cat-and-dog fights which prolonged the first session until late last fall.

Government Attitude Changes

In the executive department, the softening attitude toward business is even more evident. Nowhere is this more plain than in the Dept. of Commerce, where Secretary Sawyer has received the backing of Mr. Truman for his inter-agency campaign to improve relations between government and business. Another indication that the White House is actively supporting Mr. Sawyer's program to make the Commerce Dept. once again the businessman's spokesman is the fact that Mr. Truman turned over to the department the task of assessing the nation's transportation problems. In 1950, the Commerce Dept. is destined to play a more active part in the shaping of national economic policy.

Easier to Obtain Information

The Federal Trade Commission, under the leadership of Acting Chairman Lowell Mason, is expected to place increased emphasis on voluntary cooperation with business. First signs of this trend should be commission approval of the steel industry's proposal to end the FTC price-fixing charges.

In the Defense Dept., efforts will be continued to make it easier for the business community to obtain procurement and other vital information. The Munitions Board, which has completely stolen the mobilization ball away from the staggering National Security Resources Board, will place more emphasis on the entire national economy. Board officials are coming around to the view that if the economy is not strengthened during the present cold war the country will be unable to fight a hot war should such a situation develop.

Sticking strictly to economics, the optimistic business outlook is based on a number of factors, two of the most important being investment in new plants and the need for new construction of all types.

The annual rate of spending for new plants and equipment this year will be off from the peak year 1948 about $2 to $3 billion. The rate during the last half of 1949, down about 14 pct, will continue through the first quarter of 1950 but may level off for the last half at a rate of about $17 billion if the national gross product and personal income rate remain fairly close to the present $258 billion and $212 billion, respectively.

Despite pessimistic predictions of some economists of a 10 pct drop in construction, 1950 building will run at about the same physical volume as 1949. There may be a 5 pct decline from the $19 billion dollar volume.

THE BULL OF THE WOODS — By J. R. Williams

THE 50's

The Welfare State

vs.

Personal Initiative

THE PRODUCT AND TECHNICAL OUTLOOK FOR THE NEXT DECADE IS GOOD. BUT MANAGEMENT WILL PAY FOR IT PHYSICALLY AND MENTALLY. THERE IS NO ALTERNATIVE

Tom C. Campbell.

EDITOR

THE strain on management in the next decade will be terrific. The past 10 years will be child's play compared to what industrial leaders will face—and conquer—as we near the 1960.'s. This is no idle statement. The chart of aspirin sales over the next several years will correlate exactly with the problems which will pop up.

But there is no other choice. There is no easy way. The man on the street has found out he can vote for what he wants. The politicians and labor people know how to promise. Whether they can make good is beside the point. But when they do make good it always means more taxes and more payroll.

There is only one way to pay for welfare gadgets and heavier taxes—a combination of increased prices and absorption of costs by more output per man. But even as the year closed some people high in the steel industry were still a little hazy about the costs to come on pensions.

The 1949 pension battle is only part of the welfare state idea. It is hard to beat. Man-

Continued

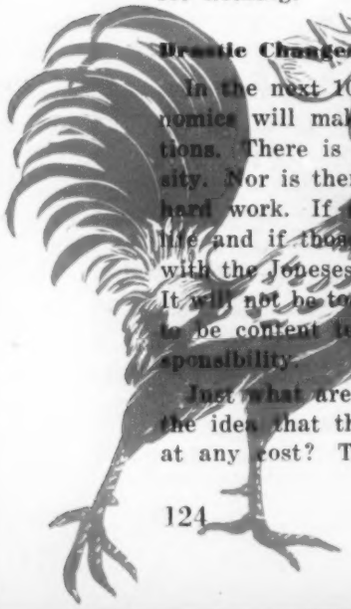
agement can cite statistics. It can use clear logic—and prove on paper that we are headed the wrong way. But for some reason or other these pleas fall on deaf ears. Or they are ridiculed. Or they are called reactionary. Or worse yet management is accused of trying to hold on to what it has. The only way out of this is to change the tone of management's voice.

As long as the people want more and more for less and less and vote for it they will get it. There is always some group that will promise to move heaven and earth to get it for them. In the process government is being built up to such an extent that it is losing all sense of efficiency.

Yet what can industrialists do? They can only try and try to get their story to the public and to their employees. But in doing this they have to talk the language of the street. They have to shout. And they will have to eliminate the pussyfooting attitude which in the past has brought nothing but gains for the other side.

Management may have to make as much noise as the politicians. It, too, will have to make promises. It may be too that it will have to assume certain trends are here—they are going to stay and the best way to overcome them is to try to keep them from getting worse.

This sad state of the country—to management—does not mean that all progress is stopped. That we are headed for the ashcan soon. Or that we are going the way of Western Europe—yet. Nor does it mean that all that can be done has been done and we must wait until the great depression, the great debacle or the great What-Is. When and if that comes it won't be any easier for management than it will be for the workers who will then find that you still can't get something for nothing.



Drastic Changes Coming

In the next 10 years or so nature and economics will make some of their own corrections. There is no safe substitute for necessity. Nor is there a substitute for brains and hard work. If management wants the better life and if those coming up want to keep up with the Joneses they will have to work for it. It will not be too hard when most people seem to be content to go along without taking responsibility.

Just what are the trends to be unfolded by the idea that the worker must have security at any cost? They are simple. In 1929 the worker was never sure when he would be fired. When he was sick there were many companies with no sick benefits. Vacations were for white collar workers, not for the timeclock punchers. Pensions were rare.

All this has changed. The worker no longer fears too much the possibility of getting fired—unless business goes into a tailspin. There is a thing called union seniority. Anyone who can come up against it knows how hard it is to fire even a goldbricker. Sometimes the effort is not worth the cost.

When a man gets sick now he will—in most metalworking plants—be sure of 26 weeks' pay at about $26.00 a week. And in some states he is protected longer. Unemployment insurance is often collected by people who leave one job, take a sojourn and then get another one. Now there are company pensions with a promise of higher ones from the government. In the next 5 years unions will attempt in every way to jack up total pension payments so that the steel companies will not get any credit for the rise in government payments.

Incentives Are Lacking

What does this do to the worker? And how does it affect makers of machine tools, steel, diesel engines and other heavy duty equipment? This is where management will come into the picture more than ever.

There will be little incentive to save among the mass of workers and the public. They can't be fired, they are paid when sick and they will have something when they are too old to work. Wise consumer goods people will go dashing after their dollars. The result will be almost complete spending with heavy instalment buying as new technological changes whet the appetite for more "gracious living."

This lack of saving means interest will center on getting rid of cash. Inflation will be intensified. There is no real hope that the present government will make any attempt to balance the budget in the near future. Efforts are already being made by speeches and in other ways to prepare for this.

Risk capital will stay in the cellar. If management wants to replace equipment it will have to do it with what it can make in net profits. These profits will be lower unless there is a combination of more production per employee and higher prices to pay for the heavier government charges for defense and welfare programs.

There is danger that management, seeing (or thinking it sees) what is ahead, will take about the same attitude as the man on the street: What's the use? But it is hard to believe that this will come about. There will be casualties as management's job becomes harder

What's Ahead

There are new patterns coming up in industry. The metalworking field will see vast changes in the next 10 years. Industrial market centers are growing into self-contained areas. Competition will be rife among all firms and groups as management tries to increase output per man to take care of the social and security urges of its workers.

The mortality among industrialists will be greater than it has been. The so-called rat race today will look like a Sunday school picnic compared to what is coming. Government will grow and grow and grow.

The only thing that will keep our present system is the stamina of its business leaders in business. If they give up or are "converted" there is only one answer. That answer is for this country to go the way of Western Europe, and finally face the coming might of the Soviets.

Unless management does keep plugging and finding new ways to make better things for less money there is no other way out. But overlooking the human angle may upset the applecart. Politicians know how to promise. So well that their promises are the sandy foundation on which the future is being built. Management must give a better promise no matter what the effort and patience will cost.

and harder. But the basic concept of this country seems to be that there is always room for one more at the top. And there are always candidates.

The real drive to make the next 10 years a progessive decade for new products, new techniques and a better scale of living is the absolute necessity for cuttings costs. If the present system of doing business in this country is to survive this must be done. There is no alternative. There is no way to banish the nightmares of those who daily try to meet payrolls and make a profit.

This drive for Utopia is the aftermath of depressions and wars. It thrives on the inability of more and more people to meet daily problems head-on. It has come also as a result of mass production. There are shorter work weeks with no definite idea of what to do with the extra time. There are repetitive jobs by the hundreds of thousands which produce a monotony that must be relieved. It is relieved by griping, by rest, by bickering, by concentrated union demands or by going just plain nuts.

In its attempt to make a little more order out of the present and future rat race management will probably have to take the lead in establishing workers' training programs on what to do with the idle time. Or how to get ahead. Or better yet how to "live" when they reach pension age. If business leaders do not help this way it means more taxes at a later date when social workers try their luck at playing God.

The average businessman knows all these things. But he is sick of reading what to do, what not to do and what to watch out for. There has been a drift away from the real job at hand. The past 10 years have been hard ones. Actual time on this job of managing has been continually interrupted.

Trends are now developing which will change our way of doing things. It is hard to decide to build a blast furnace when the steel man does not know for sure where the ore will come from, what the market center will be and what will happen in government or to railroad rates. If one looks hard enough toward the auto industry he might see a pattern. If the businessman looks at railroad rates, figures the costs of making things and ponders the taxes involved he will see another pattern. It will be nature's way of curing or attempting to offset man-made follies.

The auto companies, especially General Motors, are solving the question of bigness without inefficiency. So well have they done this that they have been able to take profits that the steel industry probably should have kept for itself. That trend here will spread. Big companies will have subsidiaries which will have to compete with other companies and with each other.

Anything that will not stand on its own feet must give way to something better, a better product or a complete junking. It is the auto industry which practices what it preaches on obsolete equipment. If machines can't pay their way they go out—and fast. If the car will not sell, something is done to make it sell.

And if competition can't be met there is a new man in the chair running things.

There is evidence galore that automakers are not only trending toward a fast and competitive period but they are realists in trying to get their share of the consumer's dollar. As they look at the labor setup and the freight rates they see the need for dispersion. Some call it decentralization. But it is more than that. It is the moving or expanding of plant to meet the area pattern of mass consumption of the product—but with emphasis on proximity of supplies that go to make the product.

Coincident with this trend which other industries will follow in the years to come is the forming of self-contained or nearly self-contained market areas which hope to give their industries as much as they need without long hauls.

Industry is starting to realize that it does not make much difference what the Federal Trade Commission or Congress does about f.o.b. mill prices. Freight rates have gone so high, labor is so expensive, that it pays to exploit the area nearest the plant or plants. As each area finds its industrialists restive it tries to do something to keep the status quo.

Just as homes will strive for more gadgets so will industry. When wage rates go out of kelter there has always been a drive to replace manpower with machines. The difference here is that labor has bucked this even though it is the real reason why labor has as much as it has.

The making of more machines will mean a cut in costs and greater productivity—with a big "if." Companies must find ways of keeping current on machinery replacements. The experience of the past several years and during the war cannot be repeated. It is too dangerous to the economy to keep on using things that have outworn their usefulness from a cold economic standpoint—even though they be 10, 20 or 2 years old.

Management has a big program to complete in the next few years. The next decade will be technologically and productively greater than the past 10 years—thanks to management.

Things to watch for are better equipment paid for out of profits. Investing money may be easier to get when companies put huge pension reserves to work.

In the basic steel industry there will be more and more market areas served by plants close by. Crosshauling and freight absorption will be pretty much out of the question. They cost too much. There will not be that much margin in the profit per ton of steel

The machine tool industry has suffered because of the status quo of its customers buying since the end of the war. The next 10 years should see that industry's high point. On it depends much of the responsibility for keeping costs within a range that will pay for the frills and foibles called security.

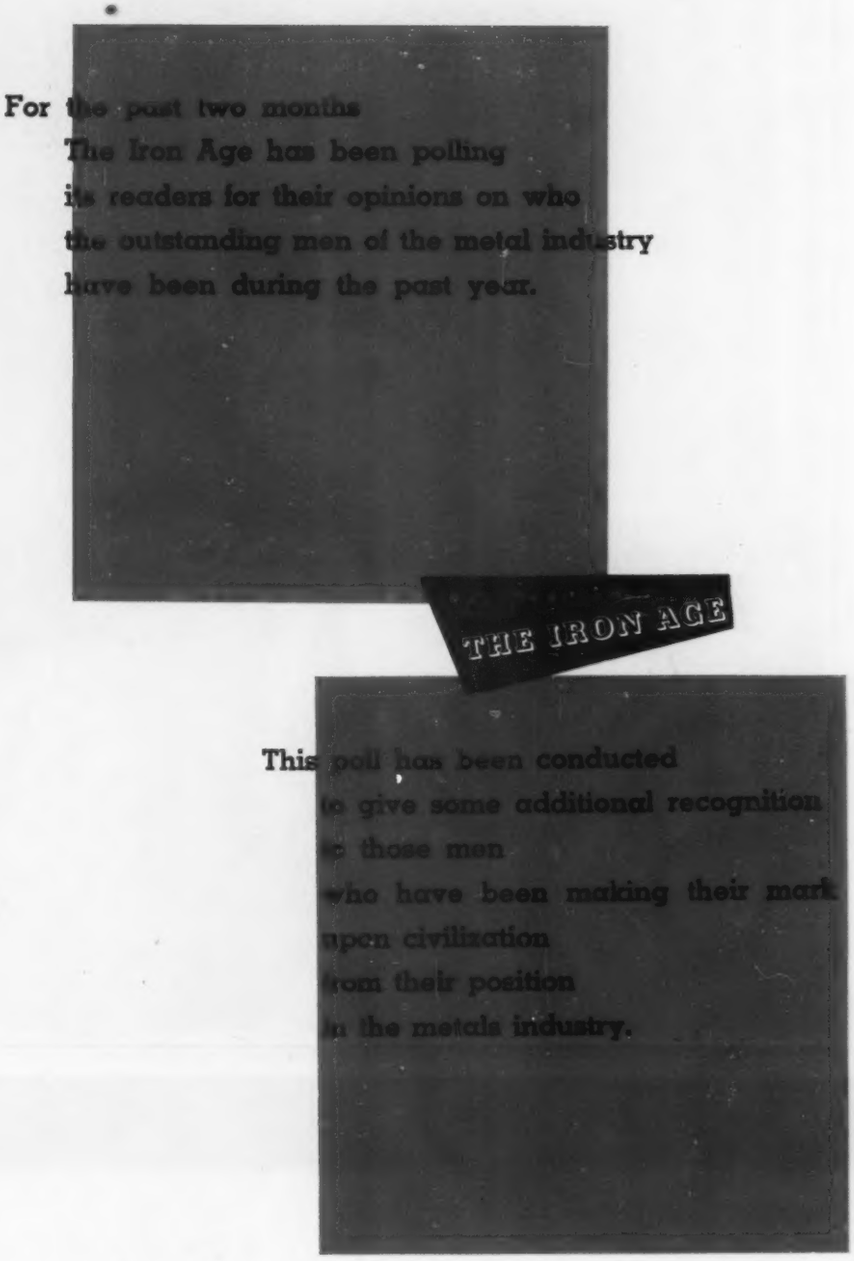
Biggest changes in the next decade will come with the way management does things. If you have something that is good you will have to yell about it, promote it, advertise it, make it in quantities and keep the price right. This will be at a tempo far surpassing today's methods. To do this management will have to wrestle with such things as changes in pensions, red tape, routine sickness reports, payments and coverage, increase in tax forms and collections and more and more attempts of government to butt into their business.

The old way is gone. The new one can become a frankenstein unless there is patience and almost superhuman attempts to explain, explain and explain to the man on the street what goes on in industry. And why he is the one who always pays the final bill. It seems simple but it isn't. If it were simple, enterprise and progress would be much cheaper.

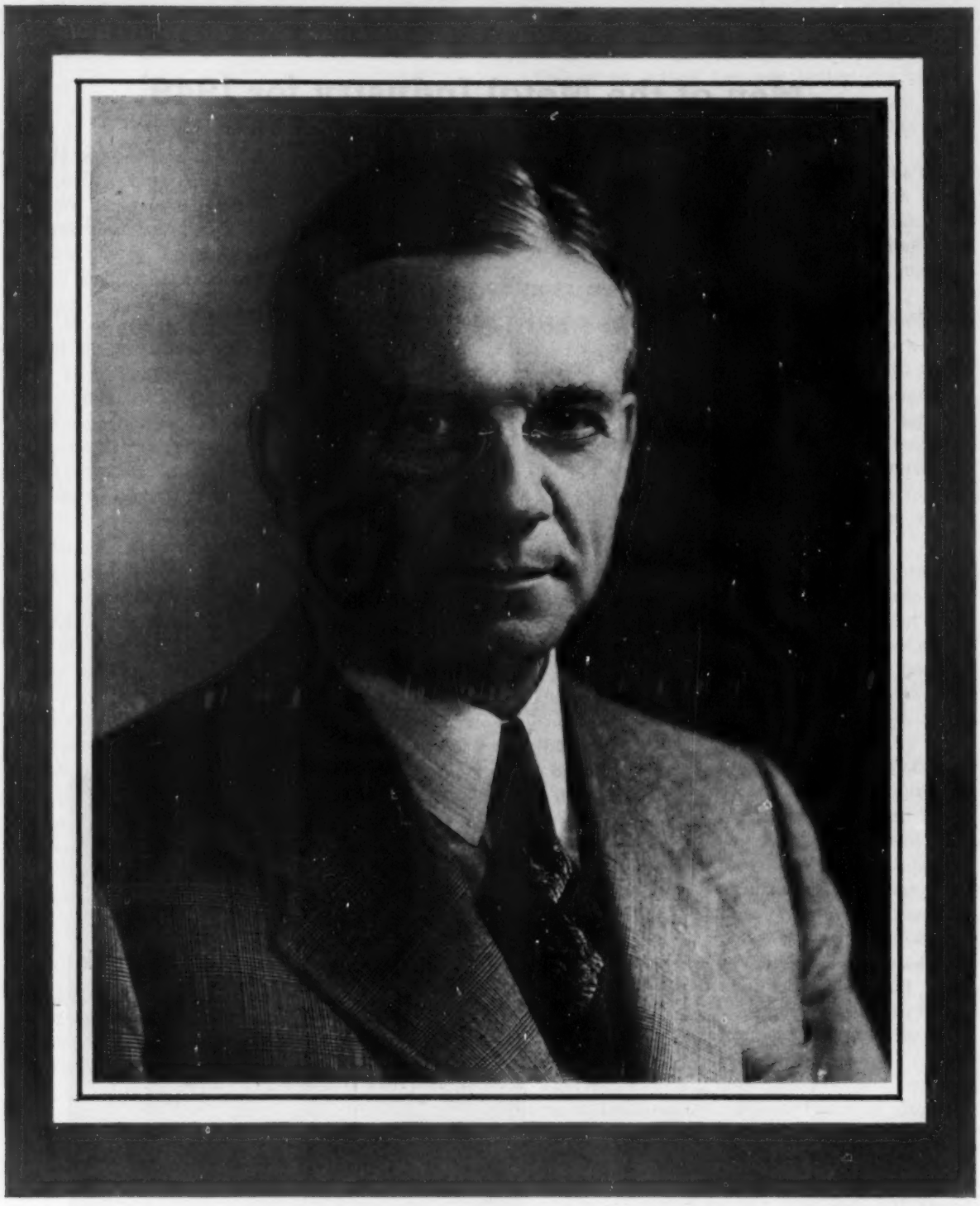
Will there be a reckoning? There always is. There have always been depressions. It will be a long time before they can be prevented—if ever. Each one measured in itself will be the last one. But there is a lot of rope left before the final hanging. There is more opportunity now than there ever was if the slogan is more production at less cost—plus a louder, clearer voice from industry.

Management's responsibility in 1950 is to become better known, better understood—and less vulnerable. That's for sure.

Men of the Metal Industry for 1949



We are happy to present the two leaders in the poll and Iron Age's men of industry for 1949 on the following pages.



CLARENCE B. RANDALL, president, Inland Steel Co.; born Newark Valley, N. Y., Mar. 5, 1891; A. B., Harvard, 1912, LL.B. 1915; Phi Beta Kappa; admitted to Michigan Bar, July 1, 1915, and practiced law in Ishpeming, Mich., 1915-25; with Inland Steel Co., Chicago, since August 1925, as assistant vice-president 1925-30; vice-president, 1930-48; president, Apr. 27, 1949; director since 1935; steel consultant E.C.A., Paris, summer 1948.

BENJAMIN F. FAIRLESS, born Pigeon Run, Ohio, May 3, 1890, civil engineer, Ohio Northern, 1913. Taught school, Wheeling & Lake Erie Railroad, 1913. From 1913-1926 engineer to vice-president of operations Central Steel, Massilon, Ohio; 1926-28 vice-president and general manager Central Alloy Steel Co. President and general manager same firm 1926-30. Executive vice-president, Republic Steel Corp., 1930-35. President, Carnegie-Illinois Steel Corp., 1935-37. President, U. S. Steel Corp. from 1938.

To say that Ben Fairless has come up the hard way leaves a lot unsaid. As he made the grade he has kept his fairness, his warmth and his human understanding.

No matter where he goes he makes friends—and he keeps them. In recent years he has had to take a lot of batting around. As head of the biggest steel firm he has caught his share of dead cats.

But no one has ever had any trouble finding out what Ben Fairless thought. He has always made himself clear. His statements about what he would or would not do have always been borne out—with no deviation.

He was, and still is, labor's friend. But he lets it be known forcefully and widely when he disagrees with labor. He does not pussyfoot nor does he take unfair advantage.

Sitting where he does and being the target of many eyes in his company and outside his company he does a good down-to-earth job. So much so that his competitors and what few enemies he may have take their hats off to him.

Unbeknownst to the public, fellow employees and many of his friends, he carries a deep sense of personal responsibility when making serious decisions. He runs his people ragged trying to get the answer. Then he has to answer to his own conscience. When he does that he acts and nothing can call him back.

Mr. Randall is very active in civic affairs. He is always talking other people into pitching in to help on any project of this nature. The chief reason he accepted the ECA post was because of his deep felt responsibility. He believes every citizen should be in civic and national affairs.

In business he is forthright, direct and never minces words. The press in Chicago particularly appreciates this characteristic. On any issue he is quick to state his position clearly and forcibly and his statements before the president's fact-finding board this year were typical Randall treatment of any subject.

His company was in a unique situation with respect to the steel industry's dispute with the union. He felt that his company had acted in good faith in its willingness to bargain on the pension issue, but could not get the union to work with him on the problem. He stated his case directly and powerfully before the President's fact-finding board, and gained nationwide understanding of his company's situation.

He is a hunter. The pheasant territory of the Dakotas is one of his favorite hunting areas. He rides regularly and at times spends vacations on dude ranches. He belongs to Indian Hill Country Club but he spends much more time on the tennis courts than on the links.

THE IRON AGE

METAL INDUSTRY FACTS ISSUE

SECTION 1

HEAT TREATING

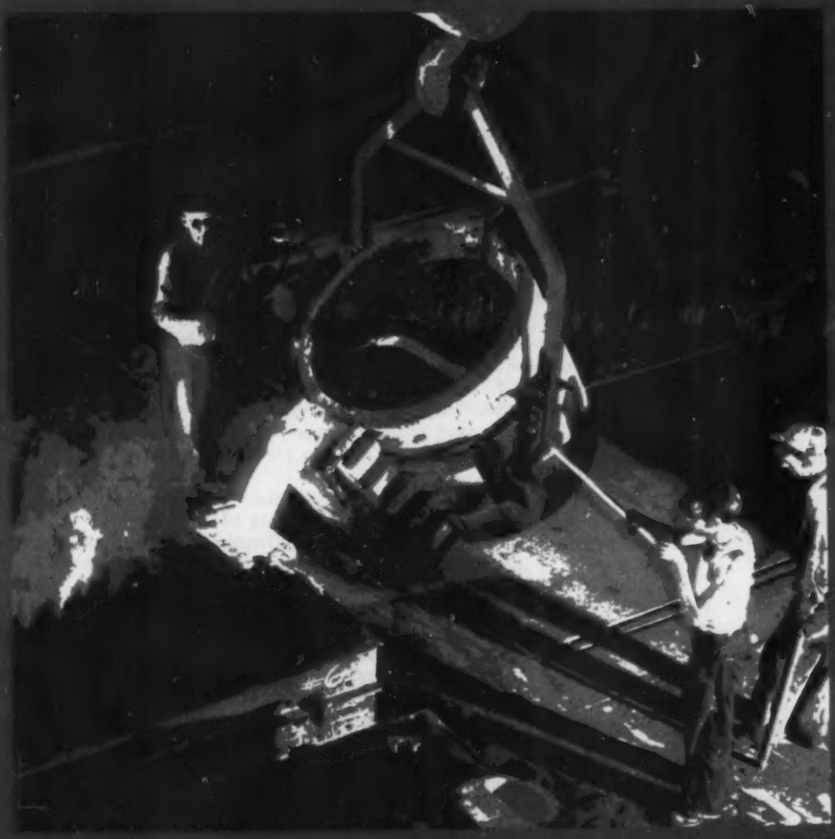
POWDER METALLURGY

STAMPING

FORMING

FORGING

CASTING



PRODUCTION

OPERATING COSTS

EMPLOYMENT & WAGES

INDUSTRY ASSOCIATIONS

PRICES

HIGHLIGHTS OF '49

SPOTLIGHTING 1949

Important Events Briefly Reviewed

Jan. 17—International Harvester's new Louisville, Ky., foundry pours first hot metal.

Jan. 24—Industrial Furnace Manufacturers Assn. mid-winter meeting, Cleveland.

Feb. 9—Steel Founders' Society of America, annual meeting, Chicago.

Feb. 10—Formation of Michigan Oven Co., 4544 Grand River Ave., Detroit, for industrial oven design, fabrication and distribution.

Feb. 17—National Founders' Assn. announces name change to National Foundry Assn.

Feb. 17—Iron Age gives first extensive disclosure of data on ductile cast iron as produced by International Nickel Co.

Feb. 24—Formation of Reed-Buckholdt, Inc., Springfield, Ill., a heat treating firm, announced.

Feb. 24—Crown Chemical Corp., Guilford, Conn., reveals purchase of Bellis Heat Treating Co., Branford, Conn.

Feb. 24—Lebanon Steel Foundry, Lebanon, Pa., announces completion of $500,000 plant expansion, doubling company's high alloy steel casting facilities.

Apr. 1—F. K. Donaldson becomes executive vice-president of Steel Founders Society of America.

Apr. 5—Metal Powder Assn., annual meeting, Chicago. B. T. du Pont, Plastic Metals Div., National Radiator Co., elected president.

Apr. 7—National Foundry Assn. names J. P. Ahern as executive director.

Apr. 14—National Castings Council, annual meeting, Cleveland.

Apr. 28—Announcement of opening of $3.5 million centrifugal casting plant at Provo by Pacific States Cast Iron Pipe Co.

Apr. 29—Announcement of first cast of centrifugally cast pipe by Pacific States Cast Iron Pipe Co., Ironton, Utah.

May 2—American Foundrymen's Society, annual convention, St. Louis. E. W. Horlebein, Gibson & Kirk Co., Baltimore, elected president.

May 12—Continental Foundry & Machine Co. purchases war surplus steel foundry in East Chicago, Ind., for $900,000.

May 16—Industrial Furnace Manufacturers 19th Annual Meeting, Virginia Beach, Va. W. E. Bourbonus, R. S. Products Corp., Philadelphia, elected president.

May 25—Dr. Roy D. Hall receives Fifth annual award from Stevens Institute of Technology for his contributions to development of powder metallurgy.

June 9—Announcement of awarding of William F. McFadden Gold Medal to Gosta Vennerholm, Ford Motor Co., for his contributions to the foundry industry.

June 9—Second annual Industrial Relations Conference, Steel Founders Society of America, Chicago.

June 16—Malleable Founders Society, annual meeting, Hot Springs, Va. J. H. Smith, Central Foundry Div. of G. M. Corp., elected president

June 30—Announcement of formation of Institute of Cast Iron Soil Pipe & Fittings Manufacturers. J. J. Nolan, Jr., Central Foundry Co., elected president.

July 7—Walter A. Gorrell named president of Pressed Metal Institute.

July 20—Pressed Metal Institute, annual convention Cleveland. Woodward G. Jeschke, president, Res Mfg. Co., Milwaukee, named president.

July 21—Kaiser-Frazer reveals details of one-piece die-cast aluminum door panels weighing 13⅜ lb before trimming.

July 28—Alloy Casting Institute, annual meeting, Colorado Springs, Colo. Harry A. Cooper, Cooper Alloy Foundry Co., Hillside, N. J., elected president.

Aug. 4—Sand Spun Patents Corp., a patent-holding subsidiary, owned jointly by three producers of cast iron pressure pipe, ordered dissolved and 19 patents turned over to public domain.

Aug. 24—A symposium on theory of powder metallurgy and physics of metals held in Bayside, L. I., under sponsorship of Sylvania Electric Products, Inc., metallurgical research laboratories.

Oct. 13—Foundry Equipment Manufacturers Assn., annual meeting, White Sulphur Springs, W. Va. John Hellstrom, American Air Filter Co., Louisville, elected president.

Oct. 14—Non-Ferrous Founders' Society, annual meeting, Cincinnati. W. M. Clark, D. W. Clark & Co., Boston, elected president.

Oct 15—Metal Treating Institute, annual fall meeting, Cleveland. Fred Heinzelman, Jr., Fred Heinzelman & Sons, New York, elected president.

Oct. 27—United Engineering & Foundry Co., Pittsburgh, announces purchase of Stedman Foundry & Machine Works, Aurora, Ill.

Oct. 27—Gray Iron Founders Society, annual meeting, Chicago. H. P. Good, Textile Machine Works, Reading, Pa., re-elected president.

Nov. 1—American Diecasting Institute, Inc., announces adoption of the Certified Zinc Alloy Plan for diecasting.

Nov. 10—National Foundry Assn., annual meeting, New York. H. E. Ladwig, Allis-Chalmers Mfg. Co., Milwaukee, elected president.

Nov. 11—Lone Star Steel Co., Lone Star, Texas to build a new $1 million cast iron pressure pipe plant, scheduled to be completed in 6 to 8 months.

Quick Guide to section No. 1

A complete cross-referenced index is on p. 3.

Metal Industry Facts

Stamping
Forming
Forging
Casting
Powder Metallurgy
Heat Treating

Iron and Steel Foundries
Employment, Hours, and Earnings

Source: Bureau of Labor Statistics

	All Employees	Production and Related Workers			
	Number (thousands)	Number (thousands)	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings
1947	258.8	229.4	$54.80	41.2	$1.330
1948	269.3	230.9	58.45	40.7	1.436
1949					
Jan..:	254.9	225.8	58.74	39.5	1.487
Feb..	248.6	219.2	58.51	39.4	1.485
Mar..	242.4	213.5	55.50	37.6	1.476
Apr...	227.3	196.4	53.43	36.2	1.476
May.	214.9	186.3	52.26	35.5	1.472
June.	212.6	184.1	53.54	36.2	1.479
July..	204.3	175.7	53.69	36.4	1.475
Aug..	....	.....	.....	.....	.....

Foundry Equipment Order Index

Source: Foundry Equipment Manufacturers Assn.

	Net Orders Closed New Equipment,		Shipments		
	$	Index	New Equipment, $	Repairs $	Total $
1949: January	693,747	149.9	1,213,737	816,018	1,029,755
February	668,095	144.4	1,387,142	823,916	2,211,058
March	882,645	190.8	955,240	767,386	1,722,626
April	797,083	172.0	998,808	716,807	1,715,615
May	564,814	121.9	950,194	578,681	1,528,875
June	783,920	164.9	1,136,552	578,198	1,714,650
July	679,432	146.6	1,027,326	419,055	1,446,381
August	588,975	127.1	1,057,651	509,963	1,567,614
September	771,864	166.6	770,285	574,653	1,344,938
October	618,489	133.5	979,891	567,492	1,547,383

VALUE OF NONFERROUS CASTINGS SHIPPED—1947

Source: Bureau of Census

Product	Total Shipments		Interplant Transfers		All Other Shipments	
	Quantity, Short Tons	Value, f.o.b. Plant, $1,000	Quantity, Short Tons	Value, f.o.b. Plant, $1,000	Quantity, Short Tons	Value, f.o.b. Plant, $1,000
Nonferrous castings, total	.....	551,280	.....	38,943	.....	512,337
Nonferrous castings produced by establishments classified in all foundry industries, total	.....	517,494	.....	37,098	.....	480,396
A. Al and Al-base alloy castings:						
Sand	63,856	78,434	1,796	2,133	62,058	76,301
Permanent and semipermanent mold	46,090	37,532	5,307	4,429	40,783	33,103
Die	41,357	48,884	259	335	41,098	48,549
Other	1,028	1,972	181	258	847	1,714
B. Cu and Cu-base alloy castings:						
Permanent and semipermanent mold	19,619	8,328	13,616	3,024	6,003	5,304
Die	1,889	2,835	.....	.....	1,889	2,835
Sand and other	238,220	181,585	27,669	15,703	210,551	165,882
C. Mg and Mg-base alloy castings	2,974	10,721	(a)	(a)	2,974	10,721
D. Zn and Zn-base alloy castings:						
Die	152,303	118,026	14,322	9,576	137,981	108,450
Other	2,178	1,744	(a)	(a)	2,178	1,744
E. Pb and Pb-base alloy diecastings	2,988	1,993	.....	.....	2,988	1,993
F. All other nonferrous metal castings:						
Die	.....	227	.....	.....	.....	227
Other	.....	5,842	.....	640	.....	5,002
G. Nonferrous castings, not specified by type	.....	19,571	.....	1,000	.....	18,571

(a) Included with all other shipments.

Die Casting (Pressure Injection) Departments Operated by U. S. Metalworking Plants Employing 21 or More Plant Workers

(Source: THE IRON AGE Basic Marketing Data)

Alabama	1	Nevada	..
Arizona	..	New Hampshire	1
Arkansas	..	New Jersey	38
California	61	New Mexico	..
Colorado	7	New York	50
Connecticut	20	North Carolina	..
Delaware	..	North Dakota	..
District of Columbia	..	Ohio	67
Florida	3	Oklahoma	1
Georgia	5	Oregon	1
Idaho	1	Pennsylvania	38
Illinois	92	Rhode Island	6
Indiana	23	South Carolina	..
Iowa	5	South Dakota	..
Kansas	1	Tennessee	4
Kentucky	3	Texas	6
Louisiana	..	Utah	..
Maine	..	Vermont	..
Maryland	1	Virginia	3
Massachusetts	17	Washington	2
Michigan	52	West Virginia	1
Minnesota	13	Wisconsin	19
Mississippi	1	Wyoming	..
Missouri	17		
Montana	..	Total	567
Nebraska	4		

Zinc Castings
Zinc and Zinc-Base Alloy Casting Shipments (1000 lb)

Source: Bureau of Census

	Diecastings	All Other	Total
1947	429,535	6,873	436,408
1948	439,183	5,771	444,954
1949: Jan.	33,006	199	33,205
Feb.	28,053	185	28,238
Mar.	28,448	273	28,721
Apr.	26,400	268	26,668
May	26,802	167	26,969
June	32,587	236	32,823
July	25,784	159	25,943
Aug.	34,731	289	35,020
Sept.	35,233	376	35,609
Oct.	35,971	447	36,418
1949: Ten months	307,015	2,599	1,190,976

Copper Castings
Copper and Copper-Base Alloy Casting Shipments (1000 lb)

Source: Bureau of Census

	Sand	Permanent Mold	Die	Total, All Types
1947	960,732	51,139	12,657	1,051,742
1948	930,790	59,009	12,672	1,030,825
1949: Jan.	68,379	4,593	963	76,348
Feb.	61,278	3,951	896	66,776
Mar.	62,557	3,927	1,005	70,173
Apr.	52,837	3,458	807	59,573
May	47,624	2,830	824	53,699
June	47,678	2,552	793	52,616
July	39,372	2,129	567	43,273
Aug.	53,203	2,929	682	58,055
Sept.	55,221	2,729	785	60,771
Oct.	52,861	2,316	860	58,289
1949: Ten months	539,484	31,414	8,182	601,573

Nonferrous Foundries Operated by U. S. Metalworking Plants Employing 21 or More Plant Workers

(Source: THE IRON AGE Basic Marketing Data)

Alabama	18	Nevada	..
Arizona	1	New Hampshire	13
Arkansas	1	New Jersey	70
California	124	New Mexico	1
Colorado	11	New York	138
Connecticut	56	North Carolina	8
Delaware	2	North Dakota	..
District of Columbia	1	Ohio	166
Florida	13	Oklahoma	9
Georgia	16	Oregon	5
Idaho	..	Pennsylvania	140
Illinois	123	Rhode Island	8
Indiana	56	South Carolina	6
Iowa	22	South Dakota	..
Kansas	12	Tennessee	16
Kentucky	6	Texas	23
Louisiana	8	Utah	4
Maine	5	Vermont	2
Maryland	10	Virginia	10
Massachusetts	65	Washington	15
Michigan	115	West Virginia	9
Minnesota	23	Wisconsin	53
Mississippi	1	Wyoming	2
Missouri	33		
Montana	3	Total	1429
Nebraska	8		

Magnesium Castings, Shipments and Unfilled Orders

Source: Bureau of Census
(Thousands of pounds)

	Shipments		Unfilled Orders*
1947	Total	For Sale	
Total	7,693	7,050	....
1948			
Jan.	659	597	2,701
Feb.	655	591	2,666
Mar.	704	625	2,741
Apr.	673	605	2,640
May	622	542	2,673
June	709	624	2,712
July	554	521	2,684
Aug.	703	655	2,834
Sept.	745	700	3,206
Oct.	706	650	3,070
Nov.	729	683	3,416
Dec.	754	695	3,455
Total	8,214	7,488	.....
1949			
Jan.	822	761	3,821
Feb.	813	756	3,566
Mar.	879	800	3,227
Apr.	726	689	3,234
May	778	726	2,885
June	799	759	3,025
July	689	637	3,073

* For sale only.

Aluminum Castings, Shipments and Unfilled Orders

Source: Bureau of Census
(Thousands of pounds)

	Shipments				Unfilled Orders*
1947	Total	Sand	Perm. Mold	Die	
Total	441,996	155,112	174,515	110,538	.....
1948					
May	33,868	11,854	12,351	9,383	75,219
June	35,822	12,296	13,239	9,843	72,930
July	28,944	9,851	10,504	8,005	70,321
Aug.	32,136	9,883	13,174	8,526	68,334
Sept.	35,877	11,822	13,353	10,218	66,773
Oct.	35,542	11,733	13,216	10,158	65,538
Nov.	34,550	11,410	13,012	9,640	63,767
Dec.	31,836	10,335	11,589	9,290	59,154
Total	424,490	139,781	161,334	118,738	.....
1949					
Jan.	29,142	9,702	10,386	8,490	55,580
Feb.	27,228	9,286	9,339	7,795	52,916
Mar.	27,478	9,348	9,386	7,999	50,506
Apr.	23,801	8,041	8,353	6,876	45,638
May	21,392	7,582	7,293	5,994	41,460
June	24,261	8,868	7,790	8,257	38,159
July	18,621	6,311	6,592	5,180	36,993
Aug.	23,997	9,048	8,326	6,119	38,130
Sept.	27,559	9,936	9,491	7,623	38,183
Oct.	30,499	10,162	9,923	8,908	37,881

* For sale only.

Heat Treating Departments Operated by U. S. Metalworking Plants Employing 21 or More Plant Workers

(Source: THE IRON AGE Basic Marketing Data)

Alabama	30	Nevada	1
Arizona	2	New Hampshire	19
Arkansas	7	New Jersey	271
California	237	New Mexico	..
Colorado	21	New York	524
Connecticut	221	North Carolina	23
Delaware	9	North Dakota	..
District of Columbia	4	Ohio	623
Florida	15	Oklahoma	26
Georgia	28	Oregon	32
Idaho	2	Pennsylvania	496
Illinois	494	Rhode Island	76
Indiana	206	South Carolina	2
Iowa	84	South Dakota	3
Kansas	19	Tennessee	37
Kentucky	27	Texas	64
Louisiana	10	Utah	8
Maine	10	Vermont	16
Maryland	48	Virginia	21
Massachusetts	282	Washington	44
Michigan	440	West Virginia	23
Minnesota	59	Wisconsin	138
Mississippi	8	Wyoming	2
Missouri	117		
Montana	1	Total	4819
Nebraska	15		

Metal Industry Facts

Stamping
Forming
Forging
Casting
Powder Metallurgy
Heat Treating

Steel Castings, Shipments by Type of Furnace and Grade of Steel (Short Tons)

Source: Bureau of Census

Type of Furnace and Grade of Steel	1949		1948	Cumulative Totals, (9 months, Jan.-Sept.)	
	September	August	September	1949	1948
TOTAL	86,502	89,964	149,222	1,011,867	1,198,448
ELECTRIC	45,417	44,944	65,149	451,596	554,491
Carbon	31,596	30,332	42,247	305,843	365,536
Alloy (including stainless)	13,821	14,612	22,902	145,755	188,955
ALL OTHER	41,085	45,020	84,073	560,269	643,957
Carbon	33,780	36,317	72,026	469,775	548,687
Alloy (including stainless)	7,305	8,703	12,047	90,494	95,270

Average Hours and Earnings in Steel Castings Industry

Source: Bureau of Labor Statistics

	Avg. Weekly Earnings, $	Avg. Weekly Hours	Avg. Hourly Earnings, $
1939	27.97	36.9	0.759
1940	29.66	38.6	0.768
1941	37.00	43.7	0.844
1942	43.77	45.8	0.955
1943	48.79	46.4	1.052
1944	51.59	46.2	1.116
1945	49.98	43.9	1.138
1946	48.45	38.8	1.248
1947*	53.94	39.6	1.362
1948*	59.93	40.6	1.476
1949*			
Jan.	60.39	39.6	1.525
Feb.	61.12	40.0	1.528
Mar.	59.40	39.0	1.523
Apr.	56.55	37.3	1.516
May	55.72	36.8	1.514
June	54.88	36.2	1.516
July	55.91	37.1	1.507

* All data for 1947, '48 and '49 calculated on revised BLS basis.

Steel Castings, Production Type of Furnace[1] for 1947, (Short Tons)

Source: Bureau of Census

	Carbon Steel	Alloy Steel, Incl. High Alloy
Cupola	2,472	1,738
Openhearth:		
Basic	400,769	30,897
Acid	281,709	84,962
Electric arc:		
Basic	162,251	109,169
Acid	404,392	92,411
Electric induction	7,305	16,450
Converter	15,962	4,336
Air furnace (cold melting)	7	4,633
Duplex and triplex melting	5,679	.....
All other furnaces	374	.....
Total	1,280,920	344,596

[1] Data based on foundries representing 98 pct of total castings shipped.

Steel Castings, Production for Sale and Orders Booked, by Type Casting

Source: Bureau of Census

Year	Production, Short Tons			Orders Booked, Less Cancellations, Short Tons		
	Total	Railway Specialties	Miscellaneous	Total	Railway Specialties	Miscellaneous
1930	991,872	368,690	623,182	884,433	333,199	551,234
1935	398,988	94,329	304,659	400,157	97,357	302,800
1940	797,947	290,255	507,692	816,919	266,418	550,501
1941	1,316,027	471,810	844,217	1,561,864	560,286	1,001,578
1942	1,679,178	309,352	1,369,826	2,187,347	219,145	1,968,202
1943	1,928,645	248,664	1,679,981	2,333,420	352,760	1,980,660
1944	1,843,386	338,007	1,505,379	1,914,294	322,630	1,591,664
1945	1,484,957[1]	311,833[1]	1,173,124[1]	1,529,912	352,382	1,177,530
1946	1,043,358[1]	286,131[1]	757,227[1]	1,069,842	283,511	786,331
1947	1,203,504[1]	341,987[1]	861,517[1]	1,330,081	449,432	880,649

[1] Shipments beginning with last quarter of 1945.

Note: Approximate coverage of industry is as follows: 1920-30, 80 pct; 1935, 90 pct; 1940-44, 96 pct; 1945-46, 100 pct; 1947, preliminary estimates of complete coverage, based on a sample of the foundries.

Steel Castings, Shipments and Unfilled Orders by Type of Casting (Short Tons)

Source: Bureau of Census

Type of Casting	Shipments			Unfilled Orders, End of Month		
	1949		1948	1949		1948
	September	August	September	September	August	September
Total Steel Castings	86,502	89,964	149,222			
For sale	55,853	59,412	112,551	127,664	143,566	447,972
Railway specialties	11,823	13,348	36,457	28,526	39,448	189,267
Other castings	44,030	46,064	76,094	99,138	104,118	258,705
For own use	30,649	30,552	36,671	.....	.....	.....
Carbon Steel Castings	65,376	66,649	114,273	.....	.....	.....
For sale	41,148	43,698	88,590	85,225	100,807	366,770
Railway specialties	11,413	12,994	34,737	27,716	38,514	183,901
Other castings	29,735	30,704	53,853	57,509	62,293	182,869
For own use	24,228	22,951	25,683	.....	.....	.....
Alloy (Including Stainless) Steel Castings	21,126	23,315	34,949	.....	.....	.....
For sale	14,705	15,714	23,961	42,439	42,759	81,202
Railway specialties	410	354	1,720	810	934	5,366
Other castings	14,295	15,360	22,241	41,629	41,825	75,836
For own use	6,421	7,601	10,988	.....	.....	.....

NOTE: Shipments for own use are defined as shipments for use by the same company, or by an affiliate, subsidiary, or parent company. All other shipments are considered as shipments for sale.

Steel Foundries Operated by U. S. Metalworking Plants Employing 21 or More Plant Workers

(Source: THE IRON AGE Basic Marketing Data)

Alabama	6	Nevada	..
Arizona	1	New Hampshire	3
Arkansas	1	New Jersey	10
California	29	New Mexico	..
Colorado	4	New York	21
Connecticut	6	North Carolina	1
Delaware	3	North Dakota	..
District of Columbia	1	Ohio	32
Florida	1	Oklahoma	1
Georgia	4	Oregon	7
Idaho	..	Pennsylvania	88
Illinois	25	Rhode Island	2
Indiana	15	South Carolina	..
Iowa	4	South Dakota	..
Kansas	3	Tennessee	3
Kentucky	1	Texas	12
Louisiana	4	Utah	1
Maine	..	Vermont	..
Maryland	3	Virginia	3
Massachusetts	9	Washington	16
Michigan	19	West Virginia	4
Minnesota	5	Wisconsin	16
Mississippi	..	Wyoming	..
Missouri	8		
Montana	..	Total	352
Nebraska	1		

Stamping Departments Operated by U. S. Metalworking Plants Employing 21 or More Plant Workers

(Source: THE IRON AGE Basic Marketing Data)

Alabama	44	Nevada	
Arizona	2	New Hampshire	21
Arkansas	11	New Jersey	385
California	481	New Mexico	1
Colorado	28	New York	909
Connecticut	317	North Carolina	30
Delaware	9	North Dakota	1
District of Columbia	5	Ohio	885
Florida	36	Oklahoma	23
Georgia	54	Oregon	28
Idaho	3	Pennsylvania	549
Illinois	1092	Rhode Island	137
Indiana	310	South Carolina	5
Iowa	107	South Dakota	3
Kansas	39	Tennessee	53
Kentucky	60	Texas	92
Louisiana	18	Utah	8
Maine	13	Vermont	9
Maryland	78	Virginia	32
Massachusetts	397	Washington	34
Michigan	652	West Virginia	30
Minbesota	131	Wisconsin	271
Mississippi	7	Wyoming	3
Missouri	192		
Montana		Total	7620
Nebraska	30		

Sheetmetal Departments Operated by U. S. Metalworking Plants Employing 21 or More Plant Workers

(Source: THE IRON AGE Basic Marketing Data)

Alabama	54	Nevada	2
Arizona	6	New Hampshire	12
Arkansas	8	New Jersey	280
California	405	New Mexico	3
Colorado	34	New York	612
Connecticut	116	North Carolina	42
Delaware	11	North Dakota	2
District of Columbia	7	Ohio	674
Florida	36	Oklahoma	35
Georgia	61	Oregon	39
Idaho	4	Pennsylvania	446
Illinois	708	Rhode Island	24
Indiana	216	South Carolina	5
Iowa	104	South Dakota	6
Kansas	55	Tennessee	64
Kentucky	58	Texas	127
Louisiana	25	Utah	9
Maine	12	Vermont	13
Maryland	76	Virginia	34
Massachusetts	237	Washington	59
Michigan	426	West Virginia	25
Minnesota	113	Wisconsin	223
Mississippi	7	Wyoming	3
Missouri	148		
Montana	3	Total	5711
Nebraska	42		

Gray Iron Foundries Operated by U. S. Metalworking Plants Employing 21 or More Plant Workers

(Source: THE IRON AGE Basic Marketing Data)

Alabama	60	Nevada	
Arizona	1	New Hampshire	17
Arkansas	2	New Jersey	71
California	87	New Mexico	1
Colorado	12	New York	140
Connecticut	44	North Carolina	30
Delaware	4	North Dakota	1
District of Columbia	1	Ohio	220
Florida	8	Oklahoma	13
Georgia	43	Oregon	15
Idaho	1	Pennsylvania	258
Illinois	161	Rhode Island	10
Indiana	97	South Carolina	9
Iowa	47	South Dakota	1
Kansas	24	Tennessee	45
Kentucky	16	Texas	36
Louisiana	10	Utah	7
Maine	6	Vermont	12
Maryland	16	Virginia	27
Massachusetts	76	Washington	22
Michigan	141	West Virginia	13
Minnesota	45	Wisconsin	86
Mississippi	6	Wyoming	1
Missouri	38		
Montana	3	Total	1997
Nebraska	9		

Zinc Powder, Average Monthly Prices

¢ per lb, f.o.b. shipping point, 10-ton lots, —100 mesh

Source: THE IRON AGE

1949	
Jan.	17.75 – 22.25
Feb.	17.75 – 22.25
Mar.	17.60 – 21.95
Apr.	16.31 – 19.50
May	15.13 – 16.63
June	14.15 – 16.25
July	11.75 – 16.25
Aug.	12.63 – 16.69
Sept.	15.30 – 18.05
Oct.	15.50 – 18.25
Nov.	15.50 – 18.25
Dec.	15.50 – 18.25
Average	15.41 – 18.71

Cast Iron Boilers and Radiation, Shipments and Inventory

Source: Bureau of Census

	Shipments (Quantity)[1]			Shipments (Value in Dollars)			Inventory, End of Period (Quantity)[1]		
	1949			1949			1949		
	May	April	1948 May	May	April	1948 May	May	April	1948 May
Cast iron boilers	8,528	6,042	19,753	1,779,903	1,279,301	3,348,788	112,115	108,574	68,869
Cast iron radiation (radiators and convectors)	1,510	1,305	5,123	847,958	733,146	2,604,402	14,803	13,833	3,064

[1] Cast iron boilers are in thousands of pounds. All quantities for radiators are in thousands of square feet of radiation. All quantities for convectors are in thousands of square feet of equivalent direct radiation.

Average Hours and Earnings in Gray Iron and Semisteel Casting Industry

Source: Bureau of Labor Statistics

	Avg. Weekly Earnings, $	Avg. Weekly Hours	Avg. Hourly Earnings, $
1939	25.93	37.1	0.699
1943	47.39	47.3	1.003
1944	51.34	47.7	1.077
1945	50.86	46.2	1.101
1946	50.70	42.5	1.194
1947*	55.24	42.3	1.306
1948*	57.46	40.9	1.405
1949*			
Jan.	57.58	39.6	1.454
Feb.	57.38	39.6	1.449
Mar.	53.82	37.4	1.439
Apr.	51.73	35.9	1.441
May	50.47	35.1	1.438
June	52.85	36.5	1.448
July	53.11	36.6	1.451

* All data for 1947, '48 and '49 calculated on revised BLS basis.

SUGGESTIONS WANTED

How can this Metal Industry Fact Issue be made more helpful to you? The editors will appreciate suggestions from readers.

Copper Powder, Average Monthly Prices

¢ per lb, f.o.b. shipping point, ton lots, —100 mesh

Source: THE IRON AGE

1949	Electrolytic	Reduced
Jan.	33.625	34.25
Feb.	33.625	34.25
Mar.	33.625	34.25
Apr.	33.625	34.25
May	29.625	29.69
June	26.125	27.50
July	27.343	26.906
Aug.	27.75	27.625
Sept.	27.75	27.625
Oct.	27.75	27.625
Nov.	28.406	28.281
Dec.	28.625	28.50
Average	29.82	30.06

Iron Powder, Average Monthly Prices

Cents per lb, f.o.b. shipping point, ton lots, unless otherwise stated

Source: THE IRON AGE

1949	Swedish Sponge, c.i.f. N. Y., Ocean Bags, —100 Mesh	Domestic Sponge, 98+ Pct Fe, Carload Lots, —100 Mesh	Electrolytic, Annealed, 99.5+ Pct Fe, —100 Mesh	Electrolytic, Unannealed, —325 Mesh 99+ Pct Fe	Hydrogen Reduced, —300 Mesh 98+ Pct Fe	Carbonyl, 5-10 Microns, 98–99.8+ Pct Fe
Jan.	7.9 to 9.0	9.0 to 15.0	25.5 to 39.5	48.5	63 to 80	90 to $1.75
Feb.	7.9 to 9.0	9.0 to 15.0	31.5 to 39.5	48.5	63 to 80	90 to 1.75
March	7.9 to 9.0	9.0 to 15.0	31.5 to 39.5	48.5	63 to 80	90 to 1.75
April	7.9 to 9.0	9.0 to 15.0	31.5 to 39.5	48.5	63 to 80	90 to 1.75
May	7.9 to 9.0	9.0 to 15.0	31.5 to 39.5	48.5	63 to 80	90 to 1.75
June	7.9 to 9.0	9.0 to 15.0	31.5 to 39.5	48.5	63 to 80	90 to 1.75
July	7.9 to 9.0	9.0 to 15.0	31.5 to 39.5	48.5	63 to 80	90 to 1.75
Aug.	7.9 to 9.0	9.0 to 15.0	31.5 to 39.5	48.5	63 to 80	90 to 1.75
Sept.	7.8 to 9.0	9.0 to 15.0	31.5 to 39.5	48.5	63 to 80	90 to 1.75
Oct.	7.4 to 9.0	9.0 to 15.0	31.5 to 39.5	48.5	63 to 80	90 to 1.75
Nov.	7.4 to 9.0	9.0 to 15.0	31.5 to 39.5	48.5	63 to 80	90 to 1.75
Dec.	7.4 to 9.0	9.0 to 15.0	31.5 to 39.5	48.5	63 to 80	90 to 1.75
Aver.	7.8 to 9.0	9.0 to 15.0	31.0 to 39.5	48.5	63 to 80	90 to 1.75

Lead Diecastings
Lead and Lead-Base Alloy Diecasting Shipments (1000 lb)

Source: Bureau of Census

	Total Shipments
1947	14,137
1948	14,877
1949	
Jan.	1,019
Feb.	705
Mar.	418
Apr.	348
May	476
June	606
July	600
Aug.	979
Sept.	1,319
Oct.	1,286
1949—Ten Months	7,756

Metal Industry Facts

Stamping
Forming
Forging
Casting
Powder Metallurgy
Heat Treating

Malleable Iron Foundries Operated by U. S. Metalworking Plants Employing 21 or More Plant Workers

(Source: THE IRON AGE Basic Marketing Data)

Alabama	1	Nevada	..
Arizona	..	New Hampshire	..
Arkansas	1	New Jersey	6
California	6	New Mexico	..
Colorado	..	New York	16
Connecticut	7	North Carolina	1
Delaware	1	North Dakota	..
District of Columbia	..	Ohio	24
Florida	..	Oklahoma	1
Georgia	1	Oregon	..
Idaho	1	Pennsylvania	15
Illinois	22	Rhode Island	1
Indiana	11	South Carolina	1
Iowa	1	South Dakota	..
Kansas	..	Tennessee	..
Kentucky	..	Texas	5
Louisiana	1	Utah	..
Maine	..	Vermont	..
Maryland	..	Virginia	..
Massachusetts	4	Washington	4
Michigan	13	West Virginia	2
Minnesota	2	Wisconsin	13
Mississippi	..	Wyoming	..
Missouri	3		
Montana	..	Total	184
Nebraska	..		

Malleable Iron Castings Production by Type of Furnace,[1] 1947 (Short Tons)

Source: Bureau of Census

Cupola	183,425
Openhearth:	
Basic	10,409
Acid	..
Electric arc:	
Basic	2,584
Acid	..
Electric induction	..
Converter	..
Air furnace (cold melting)	265,503
Duplex and triplex melting	464,337
All other furnaces	14,408
Total	920,666

[1] Data based on foundries representing 99 pct of total castings shipped.

Industrial Furnace and Oven Industry Value of Products Shipped—1947

Source: Bureau of Census

Total Shipments	$75,354,000
Electric Furnaces and Ovens	62,701,000
Electric industrial furnaces and ovens	12,181,000
Fuel fired industrial furnaces and ovens	28,412,000
Parts and attachments	13,413,000
Secondary products (heating and cooking equipment, sheet metal work, etc.)	10,469,000
Miscellaneous receipts	2,184,000

Bending and Forming Machines Quantity and Value of Shipment—1947

Source: Bureau of Census

	Total Shipments and Interplant Transfers	
	No. of Units	Value f.o.b. Plant
Pipe and structural shape bending		$1,856,000
Plate bending	1,323	6,793,000
Roll forming		5,357,000
Other bending and forming machines, incl. sheet metal		8,233,000

Average Earnings and Hours in Malleable Iron Castings Industry

Source: Bureau of Labor Statistics

	Avg. Weekly Earnings, $	Avg. Weekly Hours	Avg. Hourly Earnings, $
1939	24.16	36.0	0.671
1940	25.43	37.5	0.678
1941	31.57	41.7	0.757
1942	37.15	42.5	0.874
1943	46.14	46.5	0.994
1944	50.98	47.9	1.064
1945	49.83	45.4	1.099
1946	49.51	40.9	1.211
1947*	54.39	40.2	1.353
1948*	59.19	40.4	1.465
1949*			
Jan.	58.94	38.7	1.523
Feb.	56.77	37.3	1.522
Mar.	53.80	35.7	1.507
Apr.	52.98	34.9	1.518
May	51.60	34.4	1.500
June	53.70	35.4	1.517
July	52.56	34.9	1.506

* All data for 1947, '48 and '49 calculated on revised BLS basis.

Quantity and Value of Foundry Machinery and Equipment

Source: Bureau of the Census

	1947 Total Shipments and Interplant Transfers		1939 Total Production for Sale and Interplant Transfers	
	Quantity	Value f.o.b. Plant, $1000	Quantity	Value f.o.b. Plant, $1000
Molding machines	5 057	7,110		1,538
Patterns and molds (of metal, wood, etc.)		53,765		..
Core making machines	1,438	1,140		..
Blast cleaning equipment		4,994		5,267
Other foundry machinery		21,187		..
Total		$88,196		..

Metal Powder Parts Production Departments Operated by U. S. Metalworking Plants Employing 21 or More Plant Workers

(Source: THE IRON AGE Basic Marketing Data)

Alabama	..	Nevada	..
Arizona	..	New Hampshire	..
Arkansas	..	New Jersey	13
California	2	New Mexico	..
Colorado	..	New York	12
Connecticut	4	North Carolina	..
Delaware	..	North Dakota	..
District of Columbia	..	Ohio	9
Florida	..	Oklahoma	..
Georgia	..	Oregon	..
Idaho	..	Pennsylvania	13
Illinois	11	Rhode Island	1
Indiana	3	South Carolina	..
Iowa	1	South Dakota	..
Kansas	..	Tennessee	1
Kentucky	1	Texas	1
Louisiana	..	Utah	..
Maine	1	Vermont	..
Maryland	1	Virginia	..
Massachusetts	11	Washington	..
Michigan	14	West Virginia	..
Minnesota	1	Wisconsin	1
Mississippi	..	Wyoming	..
Missouri	..		
Montana	..	Total	101
Nebraska	1		

Average Earnings and Hours in Iron & Steel Forgings Industry

Source: Bureau of Labor Statistics

	Avg. Weekly Earnings, $	Avg. Weekly Hours	Avg. Hourly Earnings, $
1935	23.62	38.5	0.615
1936	26.11	41.7	0.627
1937	28.84	40.9	0.711
1938	23.97	32.3	0.744
1939	29.45	38.4	0.767
1940	32.56	41.2	0.791
1941	40.93	45.9	0.894
1942	49.93	47.9	1.047
1943	56.88	48.2	1.180
1944	59.62	47.7	1.251
1945	56.79	45.0	1.262
1946	52.77	39.9	1.324
1947*	59.79	40.7	1.469
1948*	65.16	40.8	1.597
1949*			
Jan.	69.30	41.3	1.678
Feb.	68.67	40.9	1.679
Mar.	65.17	39.4	1.654
Apr.	62.24	38.0	1.638
May	61.96	37.6	1.648
June	62.93	38.0	1.656
July	61.24	37.5	1.633

* All data for 1947, '48 and '49 calculated on revised BLS basis.

Forge Shops Operated by U. S. Metalworking Plants Employing 21 or More Plant Workers

(Source: THE IRON AGE Basic Marketing Data)

Alabama	22	Nevada	1
Arizona	1	New Hampshire	10
Arkansas	3	New Jersey	87
California	89	New Mexico	..
Colorado	13	New York	147
Connecticut	61	North Carolina	8
Delaware	3	North Dakota	..
District of Columbia	5	Ohio	186
Florida	13	Oklahoma	9
Georgia	19	Oregon	15
Idaho	3	Pennsylvania	220
Illinois	148	Rhode Island	14
Indiana	66	South Carolina	1
Iowa	23	South Dakota	1
Kansas	14	Tennessee	22
Kentucky	18	Texas	43
Louisiana	10	Utah	5
Maine	9	Vermont	11
Maryland	17	Virginia	18
Massachusetts	106	Washington	25
Michigan	124	West Virginia	24
Minnesota	30	Wisconsin	51
Mississippi	6	Wyoming	1
Missouri	32		
Montana	4	Total	1755
Nebraska	8		

Imports of Iron Powder From Sweden

Source: Department of Commerce

1948	Total Weight, Lb
January	350,000
February	424,000
March	390,800
April	332,000
May	389,400
June	796,900
July	482,763
August	87,272
September	...
October	457,000
November	1,189,659
December	280,000
1948 Total	5,179,794
1949	
January	645,355
February	513,870
March	345,213
April	500,533
May	324,419
June	491,781
July	620,396
August	280,740
September	417,300
October	567,270
1949 Total (10 months)	4,796,883

Shipments of Iron Powders, Tons

Source: THE IRON AGE

	Total	Bearings and Parts	Friction Materials	Magnetic Cores	Miscellaneous
1943	2,135	...	...	...	...
1944	1,720	...	...	...	...
1945	1,950	...	...	...	...
1946	2,485	1,350	30	415	690
1947	3,115	1,560	30	600	845
1948	3,520	1,685	25	990	820
1949	3,235	1,746	14	935	540

Shipments of Grain Copper Powders, Tons

Source: THE IRON AGE

	Total	Bearings and Parts	Friction Materials	Graphite Metal Brushes	Miscellaneous
1943	6,430	...	...	...	...
1944	6,770	...	...	...	...
1945	6,550	...	...	...	...
1946	7,380	5,900	560	330	590
1947	8,700	7,170	615	385	600
1948	8,580	6,560	675	575	770
1949	7,014	4,374	1,158	450	1,032

Shipments of Lead Powder, Tons

	Total	Bearings	Friction Materials	Protective Coatings	Miscellaneous
1943	731	...	...	...	...
1944	1,441	...	...	...	...
1945	5,195*	...	...	...	...
1946	905*	55	195	193	462
1947	785*	53	165	187	380
1948	1,040*	74	319	141	506
1949	790	68	315	210	350

* From American Bureau of Metal Statistics; other years are IRONAGE estimates.

Nonferrous Forgings U. S. Shipments, 1947

Source: Bureau of Census

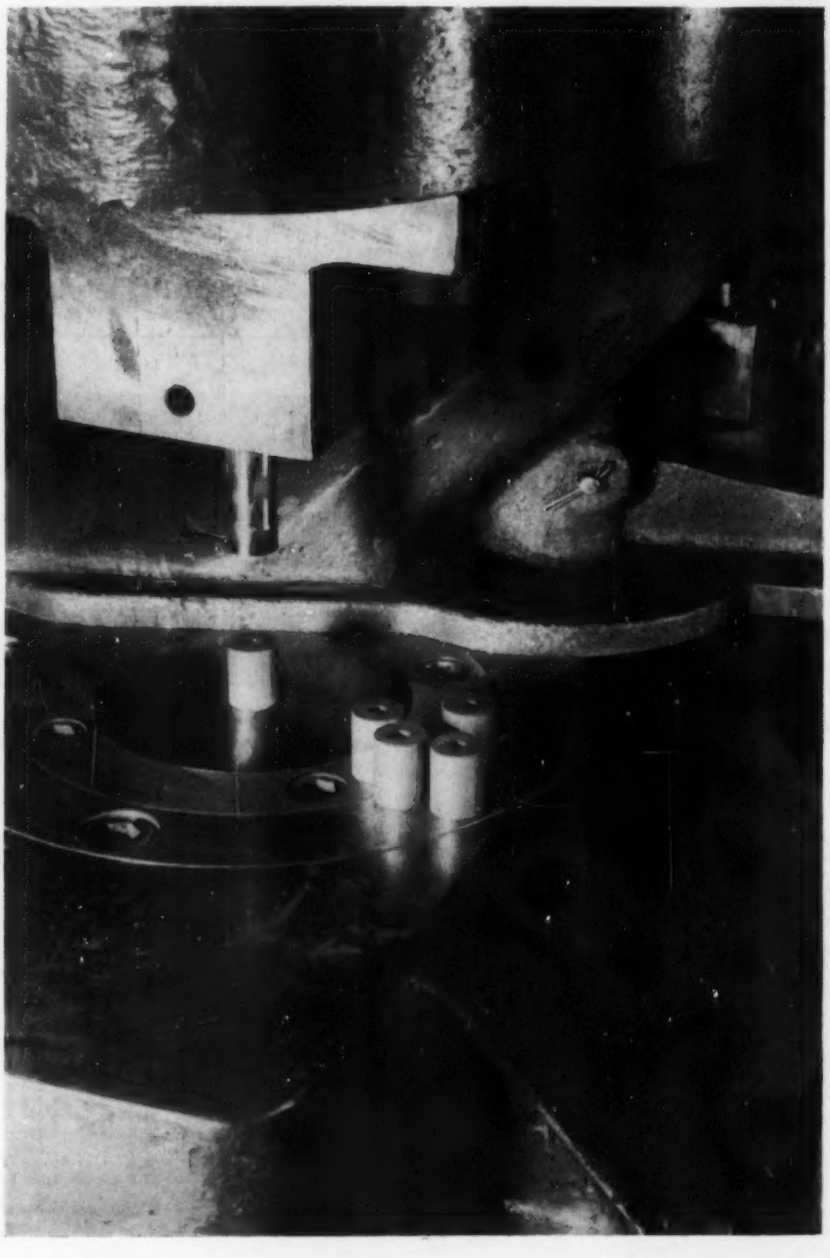
	Total Shipments and Interplant Transfers	
	Quantity, Short Tons	Value, f.o.b. Plant
Nonferrous forgings, total	...	$29,374,000
Copper and copper-base alloy	17,823	18,536,000
Aluminum and aluminum-base alloy	8,485	10,598,000
Other	...	240,000

VALUE OF STAMPING PRODUCTS—1947

Source: Bureau of Census

	Total Shipments and Interplant Transfers of Products Made from the Establishment's Own Materials, Value f.o.b. Plant (000 Omitted)
Job Stampings, Automotive (Truck, Bus and Passenger Cars)	$393,735
Job Stampings, Except Automotive	346,867
Agricultural Equipment Stampings, Including Tractor	25,591
Aviation Stampings	8,503
Electrical Appliance Stampings	29,577
Furniture Stampings	6,060
Office Machine Stampings	2,947
Radio and Television Stampings	27,686
Refrigerator Stampings	43,123
Stove, Heater and Air Conditioner Stampings	21,968
Washing Machine Stampings	136,710
Other Job Stampings	22,307
Job Stampings (Except Automotive) not Reported by Type	16,395
Stamped and Spun Household and Hospital Utensils (Except Porcelain Enameled)	155,928
Cooking and Kitchen Utensils (incl. Household, Hospital and Commercial):	
Tinned	19,127
Stainless Steel	30,944
Aluminum	88,516
Other Metal	11,661
Cooking and Hospital Utensils, not Reported by Type of Material	4,433
Hospital Utensils, Except Cooking and Kitchen	1,247
Perforated Metal End Products, and Other Stamped and Pressed Metal End Products	93,443
Perforated Metal End Products	7,394
Other Stamped and Pressed Metal End Products	86,049
Metal Stampings, not Reported by Type	34,710

Note: Receipts for work done on material owned by others, in classifications of automotive job stampings and job stampings, except automotive totaled approx. $30,626,000.



Metal Industry Facts

Stamping
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Stamped and Pressed Metal Products Hours Worked and Earnings

Source: Bureau of Labor Statistics

	Production and Related Workers		
	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings
1947	$83.71	40.6	$1.323
1948	58.39	40.3	1.449
1949: Jan.	60.85	40.3	1.510
Feb.	60.24	40.0	1.506
March	59.02	39.4	1.499
April	58.76	39.2	1.499
May	58.69	39.1	1.501
June	61.18	40.0	1.529
July	59.98	39.0	1.538

Material Used by Forging Industry

Selected list of materials consumed by iron and steel forgings industry in 1947

Source: Bureau of Census

	Quantity Short Tons	Cost (000 omitted)
Carbon Steel:		
Ingots	71,523	$3,874
Slabs	440,239	24,204
Bars	611,301	42,535
Alloy Steel except Stainless:		
Ingots	31,123	2,867
Blooms Billets Slabs	142,281	13,111
Bars	328,651	31,857
Stainless Steel:		
Ingots	19	12
Blooms Billets Slabs	3,574	1,827
Bars	1,497	849

Iron & Steel Forgings—Shipments

Value of shipments by the industry, by type of forgings, for 1947

Source: Bureau of Census

	Value (000 omitted)
Total Shipments	$370,097
Iron & Steel Forgings	337,281
Closed Die Steel Forgings	258,309
Open Die or Smith Steel Forgings	72,766
Steel Forgings not Reported by Type	6,206
Wrought Iron Forgings	
Secondary Products	19,107
Small Cutting Tools	1,311
All Other Secondary Products	17,796
Miscellaneous Receipts	13,709
Contract & Commission Work	1,353
Repair Work	1,054
Scrap & Salable Refuse	11,275
Nonmanufacturing Activities	27

STEEL CASTINGS, SHIPMENTS

By Grade of Steel (Short Tons)

Source: Bureau of Census

	Total	For Sale	For Own Use	Electric		All Other	
				Carbon	Alloy (Incl. Stainless)	Carbon	Alloy (Incl. Stainless)
1947	1,625,055	1,203,504	421,551	487,486	256,842	753,519	127,208
1948	1,759,127	1,335,295	424,737	534,430	229,839	835,720	159,138
1949: January	140,577	103,503	37,074	44,998	18,747	64,699	12,133
February	135,042	99,425	35,617	41,313	18,060	64,267	11,402
March	138,889	102,027	36,862	40,802	20,151	66,797	11,139
April	119,953	83,277	36,676	34,440	16,734	57,473	11,306
May	106,178	75,537	30,641	27,311	14,764	54,977	9,126
June	116,052	84,112	31,940	33,793	16,685	54,925	10,649
July	78,710	50,124	28,586	21,258	12,181	36,540	8,731
August	89,964	59,412	30,552	30,332	14,612	38,317	8,703
September	86,502	55,853	30,649	31,596	13,821	33,780	7,305
Total—Nine Months	1,011,867	713,270	298,597	305,843	145,755	489,775	90,494

Forging Machines (Including Forging Presses)

Quantity and value of total shipments and interplant shipments, 1939-1947

Source: Bureau of Census

	1947		1939	
	No. of Units	Value f.o.b. Plant	No. of Units	Value f.o.b. Plant
Hammers	588	$4,344,000	143	$1,775,000
Forging presses	207	3,249,000	...	688,000
Other forging machines (bulldozers, headers, upsetters, etc.)	615	8,964,000	...	2,655,000

Nonferrous Foundries Employment, Hours, and Earnings

Source: Bureau of Labor Statistics

	All Employees	Production and Related Workers			
	Number (thousands)	Number (thousands)	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings
1947	85.9	74.4	$54.92	40.0	$1.373
1948	85.2	73.2	59.96	40.0	1.499
1949					
Jan...	85.0	72.0	61.46	39.5	1.556
Feb..	80.9	68.2	61.46	39.5	1.556
Mar..	78.2	65.3	59.48	38.6	1.541
Apr...	76.4	62.2	58.79	38.0	1.547
May..	73.0	59.9	59.01	37.9	1.557
June..	72.1	59.4	60.09	38.5	1.560
July..	70.5	58.4	60.60	38.7	1.566

Copper Castings Consumption

Selected Data on Consumption of Rough and Semifinished Castings, by Various Industries—1947

Source: Dept. of Commerce

	No. of Castings	Short Tons	Cost (000 omitted)
Pump and compressor	83	10,571	$8,303
Conveyer	9	775	569
Power transmission equipment	36	7,998	4,450
General industrial machinery (N.E.C.)	33	1,662	1,531
Structural and ornamental products	11	416	386
Boiler shop products	8	192	164
Sheet metal work	9	189	151
Electrical appliances	5	282	193
Screw machine products	5	194	139
Steam engines and turbines	8	800	793
Internal combustion engines	23	1,281	1,172
Tractors	8	882	548
Farm machinery (except tractors)	25	1,138	867
Construction and mining machinery	41	2,473	1,863
Oil-field machinery and tools	16	774	621
Domestic laundry equipment	6	288	270
Laundry and dry cleaning machinery	5	862	702
Refrigeration machinery	17	608	507
Measuring and dispensing pumps	8	898	711
Service and household machines (N.E.C.)	14	769	622
Motor vehicles and parts	33	3,159	3,242
Metal plumbing fixtures and fittings	50	7,884	6,142
Oil burners	5	222	176
Heating and cooking apparatus (N.E.C.)	34	2,221	1,856
Food products machinery	44	2,917	2,771
Textile machinery	12	283	217
Paper industries machinery	22	1,695	1,305
Printing trades machinery	8	448	426
Special industry machinery (N.E.C.)	32	1,910	1,539
Shipbuilding and repairing	16	789	599
Boat building and repairing	9	621	588
Locomotives and parts	9	1,529	1,393
Railroad and street cars	12	2,085	1,409
Wiring devices and supplies	18	1,803	1,650
Motors and generators	17	1,632	1,507
Transformers	7	286	263
Electrical control apparatus	35	4,190	3,955
Electrical welding apparatus	17	963	1,122
Machine tools	24	776	778
Metalworking machinery (N.E.C.)	39	3,029	2,392
Cutting tools, jigs, fixtures, etc.	7	380	274

Note: All other consuming industries reported by Dept. of Commerce consumed less than 5 castings each.

IRON AND STEEL FORGINGS

Shipments, 1947

Source: Bureau of Census

Product	Total Shipments		Interplant Transfers		All Other Shipments	
	Quantity, Short Tons	Value, f.o.b. Plant, $1000	Quantity, Short Tons	Value, f.o.b. Plant, $1000	Quantity, Short Tons	Value, f.o.b. Plant, $1000
Closed die steel forgings:						
Carbon steel	783,069	187,518	102,094	19,205	680,975	168,313
Alloy steel, except stainless	365,657	106,828	76,298	18,923	293,367	93,475
Stainless steel	4,008	5,570				
Open die or smith steel forgings:						
Carbon steel	329,745	71,991	52,325	10,505	277,420	61,086
Alloy steel, except stainless	156,815	53,387	4,686	2,788	154,776	54,211
Stainless steel	2,647	3,612				
Wrought iron forgings	5,379	2,251	(a)	(a)	(a)	(a)
Steel forgings, not specified by type	n.a.	12,950	n.a.	n.a.	n.a.	n.a.

(a)—Data withheld
n.a.—Not available

MALLEABLE IRON CASTINGS

Production, Shipments and Orders Booked

Source: Bureau of Census

	Production, Short Tons	Shipments, Short Tons			New Orders, Less Cancellations, Short Tons			Shipments, Monthly Index*
		Total	For Sale	For Own Use	Total	For Sale	For Own Use	
1930	471,923	475,371	.....	.....	432,722	.....	.....	
1935	466,395	455,208	.....	.....	452,611	.....	.....	96.1
1938	289,914	296,003	208,597	87,406	289,384	203,172	86,212	62.5
1939	480,578	466,068	331,421	134,647	489,482	354,249	135,233	98.4
1940	565,923	556,209	400,818	155,391	571,929	414,310	157,619	117.4
1941	843,038	832,173	619,365	212,808	884,881	663,688	221,193	175.7
1942	768,496	746,008	590,804	155,204	859,102	703,167	155,935	157.5
1943	849,764	844,639	653,884	190,755	1,054,224	826,422	227,802	178.3
1944	889,820	878,233	619,588	258,645	969,483	685,511	283,972	185.4
1945	.....	790,731	520,887	269,844	766,711	426,159	340,552	166.9
1946	.....	752,028	452,355	299,673	.....	483,368	.....	158.8
1947	.....	895,054	513,228	381,826	.....	447,975	.....	188.9
1948	.....	933,285	525,212	408,053	.....	460,189	.....	197.0
1949: Jan.	.....	71,876	38,040	33,836	.....	26,948	.....	182.1
Feb.	.....	66,744	35,074	31,670	.....	26,999	.....	169.1
March	.....	72,052	38,134	33,909	.....	22,204	.....	182.5
April	.....	61,329	31,728	29,601	.....	24,307	.....	155.4
May	.....	54,572	27,643	26,929	.....	11,629	.....	138.2
June	.....	59,597	32,639	26,958	.....	23,560	.....	151.0
July	.....	44,360	23,216	21,144	.....	24,147	.....	112.4
Aug.	.....	58,121	30,327	27,794	.....	20,861	.....	147.2
Sept.	.....	60,488	30,646	29,842	.....	26,828	.....	153.2

Note: Statistics represent coverage of approximately 90 pct for 1923-43; thereafter coverage is essentially complete.
* Based on average monthly shipments for 5-year period 1935-39 (39,476 short tons).

ADDRESSES AND OFFICERS OF ASSOCIATIONS AND SOCIETIES

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Pres. H. A. Cooper
Exec. Sec. E. A. Schoefer

American Die Casting Institute
366 Madison Ave., New York 17
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American Foundrymen's Society
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Pres. E. W. Horlebein
Exec. Sec. W. W. Maloney

American Society for Metals
7106 Euclid St., Cleveland
Pres. A. E. Focke
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Cast Iron Pressure Pipe Institute
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Exec. Vice Chairman S. E. Linderman

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Managing Director L. D. Ryan

Metal Powder Assn.
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Pres. H. E. Ladwig
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National Metal Trades Assn.
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Assoc. Commissioner G. J. Earl
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New England Foundrymens Assn.
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Pres. T. H. Shartle
Exec. Vice Pres. F. K. Donaldson

Iron Casting Consumption

Selected Data on Consumption of Rough and Finished Castings by Various Industries—1947

Source: Dept. of Commerce

	No. of Castings	Short Tons	Cost, (000 omitted)
Pump and compressor	139	132,460	$33,001
Elevators and escalators	22	9,254	1,999
Conveyor	49	33,902	7,054
Blower and fan	23	11,548	2,967
Industrial trucks and tractors	31	20,448	3,928
Power transmission equipment	85	65,802	12,638
Industrial furnaces and ovens	15	3,339	734
Mechanical stoker	14	18,356	3,568
General industrial machinery, N.E.C.	85	40,170	10,788
Structural and ornamental products	21	10,196	1,691
Metal doors, sash and trim	10	2,142	710
Boiler shop products	40	12,779	2,809
Sheet metal work	10	2,614	582
Bolts, nuts, washers and rivets	11	2,565	813
Screw machine products	5	1,091	344
Metal stampings	20	7,710	1,849
Lighting fixtures	21	3,656	1,074
Steam engines and turbines	15	18,528	5,382
Internal combustion engines	49	221,896	17,596
Tractors	38	385,494	66,097
Farm machinery (except tractors)	93	203,175	42,936
Construction and mining machinery	108	89,439	17,596
Oil-field machinery and tools	27	14,674	2,431
Wirework (N.E.C.)	11	3,407	1,006
Computing and related machines	6	2,302	777
Typewriters	11	4,872	1,519
Scales and balances	17	6,633	2,112
Office and store machines (N.E.C.)	7	3,002	1,266
Photographic equipment	7	628	224
Electrical appliances	19	10,297	2,684
Engine electrical equipment	11	18,718	3,972
Telephone and telegraph equipment	6	2,867	496
Communication equipment (N.E.C.)	8	1,262	495
Domestic laundry equipment	22	31,351	6,488
Laundry and dry cleaning machinery	23	31,269	6,616
Sewing machines	9	17,542	4,720
Refrigeration machinery	47	64,035	13,675
Measuring and dispensing pumps	17	15,792	4,263
Service and household machines (N.E.C.)	10	4,851	1,637
Motor vehicles and parts	152	1,459,485	291,185
Truck and bus bodies	8	8,161	2,138
Truck trailers	11	1,523	371
Metal plumbing fixtures and fittings	13	4,151	773
Oil burners	27	6,830	1,890
Heating and cooking apparatus (N.E.C.)	179	122,337	28,074
Food products machinery	107	38,561	10,198
Textile machinery	82	89,594	17,782
Woodworking machinery	79	42,417	8,397
Paper industries machinery	50	49,375	10,606
Printing trades machinery	37	40,438	11,083
Special industry machinery (N.E.C.)	157	72,004	16,189
Shipbuilding and repairing	21	2,564	648
Locomotives and parts	13	11,068	3,408
Railroad and street cars	39	120,017	13,848
Motorcycles and bicycles	5	4,159	966
Wiring devices and supplies	31	18,106	4,550
Motors and generators	76	175,640	39,306
Transformers	9	3,645	784
Electrical control apparatus	21	7,119	2,561
Electrical welding apparatus	10	911	295
Machine tools	144	130,984	30,474
Metalworking machinery (N.E.C.)	123	89,407	18,020
Cutting tools, jigs, fixtures, etc.	88	39,419	8,284

NOTE: Other consuming industries reported by Dept. of Commerce consumed less than 5 castings each.

IRON AND STEEL FORGINGS INDUSTRY

General Statistics—1947
(Money figures in millions)

Source: Bureau of Census

Item	United States Total	Calif.	Illinois	Mass.	Mich.	N. J.	Ohio	Penna.	Texas	Wis.	All Other States
Number of establishments	250	23	30	15	29	15	36	32	4	9	57
All employees:											
Number (average for the year)	36,724	781	6,701	2,413	5,270	1,194	5,441	5,297	175	3,834	5,618
Salaries and wages (total)	$128.2	$2.6	$26.9	$7.9	$18.7	$4.0	$18.8	$18.5	$.5	$14.1	$18.2
Production and related workers:											
Number (average for the year)	32,384	637	5,730	2,115	4,732	1,060	4,904	4,743	152	3,258	5,053
Wages (total)	$105.8	$2.0	$21.8	$6.4	$15.7	$3.3	$15.9	$13.8	$.4	$11.3	$15.2
Value added by manufacture*	$197.1	$4.3	$44.3	$11.0	$29.2	$6.1	$29.5	$24.0	$.8	$22.2	$25.7
Cost of materials, fuel, electricity, and contract work	$173.0	$4.4	$33.3	$8.3	$34.3	$5.5	$22.7	$21.5	$.8	$14.9	$27.3
Value of shipments	$370.1	$8.7	$77.6	$19.2	$63.5	$11.7	$52.2	$45.5	$1.6	$37.0	$53.1

* Value of shipments less cost of materials, fuel, electricity, and contract work.

Metal Industry Facts

Stamping
Forming
Forging
Casting
Powder Metallurgy
Heat Treating

Aluminum Castings Consumption

Rough & Semifinished Aluminum Castings Consumed by Selected Industries* —1947

Source: Bureau of Census

	Number*	Short Tons	Cost (000 omitted)
Pump and compressor	22	1,016	$1,419
Blower and fan	11	531	701
Power transmission equipment	9	667	797
General industrial machinery (N.E.C.)	14	398	577
Structural and ornamental products	7	198	163
Aircraft	13	1,211	2,491
Aircraft engine	10	3,019	4,568
Aircraft equipment	5	105	331
Metal stampings	10	951	801
Lighting fixtures	29	1,395	1,428
Internal combustion engines	29	5,383	6,291
Tractors	6	2,150	1,764
Farm machinery (except tractors)	28	2,592	2,026
Construction and mining machinery	7	321	236
Wire work (N.E.C.)	5	511	420
Computing and related machines	7	527	884
Typewriters	9	2,427	2,190
Scales and balances	5	373	381
Office and store machines (N.E.C.)	11	293	700
Photographic equipment	23	989	1,356
Electrical appliances	35	6,979	6,360
Engine electrical equipment	10	2,130	1,994
Radios and related products	9	1,581	1,669
Telephone and telegraph equipment	5	295	458
Communication equipment (N.E.C.)	7	349	259
Domestic laundry equipment	25	9,018	7,015
Laundry and dry cleaning machinery	8	810	778
Vacuum cleaners	17	5,724	5,492
Refrigeration machinery	8	1,974	1,166
Measuring and dispensing pumps	7	510	478
Service and household machines (N.E.C.)	10	712	659
Motor vehicles and parts	61	32,878	21,391
Oil burners	21	1,439	1,764
Heating and cooking apparatus (N.E.C.)	21	1,744	1,645
Food products machinery	28	1,256	1,367
Textile machinery	8	234	267
Woodworking machinery	7	1,019	860
Printing trades machinery	7	384	564
Special industry machinery (N.E.C.)	41	1,183	1,322
Locomotives and parts		2,145	3,032
Motorcycles and bicycles		862	1,021
Wiring devices and supplies	21	2,277	2,306
Electrical measuring instruments	6	2,589	2,298
Motors and generators	41	6,296	5,314
Electrical control apparatus	8	267	351
Electrical welding apparatus	5	81	132
Machine tools	16	609	549
Metalworking machinery (N.E.C.)	22	2,304	3,085
Cutting tools, jigs, fixtures, etc.	6	99	113

* Industries reported by Bureau of Census but not included above used less than 5 castings.

VALUE OF STAMPING PRODUCTS—1947

By Classes of Products (000 omitted)

Source: Bureau of Census

	Value (000 omitted)
Total Shipments by the Industry	$1,164,299
A. Metal Stampings	978,973
Job Stampings Automotive	337,297
Job Stampings except Automotive	279,550
Pails, Ash Cans, and Garbage Cans (except Shipping Containers)	24,335
Metal Home Canning Closures except One-Piece Zinc (Porcelain Lined) Screw Caps	11,942
Metal Commercial Closures except Crowns	44,424
Crowns	54,218
Stamped and Spun Household and Hospital Utensils (except Porcelain Enameled)	133,140
Perforated Metal End Products and Other Stamped and Pressed Metal End Products	66,393
Metal Stampings not Reported by Type	27,674
B. Secondary Products	159,113
Enameled-Iron and Metal Plumbing Fixtures	2,541
Sheet-Metal Products	12,301
Vitreous-Enameled Cooking and Kitchen Utensils	4,443
Jigs, Fixtures, etc.	33,307
Needles, Pins, Hooks and Eyes and Similar Notions	5,572
Cork Products	6,052
Other Secondary Products (Metal Cans; Doors and Door Frames; Kitchen Furniture; Metal Shipping Barrels and Drums; Steel Shipping Packages Kegs and Pails etc.)	94,897
C. Miscellaneous Receipts	26,213
Contract and Commission Work	3,913
Repair Work	552
Scrap and Salable Refuse	18,823
Nonmanufacturing activities	2,925

STAMPED AND PRESSED METAL PRODUCTS INDUSTRY

General Statistics—1947 (Money figures in millions)

Source: Bureau of Census

Item	United States, Total	Calif.	Conn.	Illinois	Ind.	Mass.	Mich.	N. J.	N. Y.	Ohio	Pa.	Wis.	All Other States
Number of establishments	1,981	151	61	295	73	85	237	95	341	217	113	79	234
All employees:													
Number (average for the year)	132,011	3,809	7,041	15,734	4,827	3,107	19,808	3,204	12,481	18,253	22,454	8,307	12,986
Salaries and wages (total)	$388.0	$11.7	$21.0	$46.6	$13.3	$8.4	$64.7	$9.2	$37.7	$55.0	$66.8	$22.3	$31.3
Production and related workers:													
Number (average for the year)	113,976	3,156	6,014	13,503	4,174	2,700	17,470	2,682	10,788	15,789	19,062	7,176	11,482
Wages (total)	$304.1	$8.4	$15.6	$35.6	$10.3	$6.2	$52.1	$7.0	$29.0	$43.5	$52.4	$17.6	$26.4
Value added by manufacture*	$642.5	$18.9	$29.7	$78.1	$23.5	$13.9	$101.5	$15.2	$63.6	$96.6	$101.0	$43.9	$56.6
Cost of materials, fuel, electricity, and contract work	$521.8	$17.0	$20.2	$55.5	$19.4	$7.7	$91.7	$10.3	$46.3	$83.7	$84.9	$26.2	$56.9
Value of shipments	$1,164.3	$35.9	$49.9	$133.5	$42.9	$21.6	$193.2	$25.5	$109.9	$180.3	$185.9	$72.1	$113.6

* Value of shipments less cost of materials, fuel, electricity, and contract work.

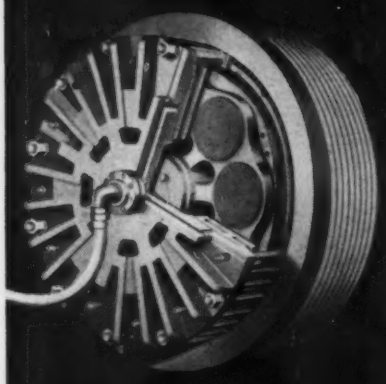
Proving the New Danly Clutch

...in 6 months of continuous 2 shift press operation without adjustment or repair!

This 500 ton press in one of the country's leading automotive plants has run 16 hours a day for over six months... single stroking over 300 times every hour! During this time, the new Danly cool-running clutch hasn't even required adjustment for lining wear! Clutch maintenance, a main item of stamping cost, was virtually eliminated!

A record like this is typical of Danly clutch performance. Danly cool-running clutches are able to outwear conventional clutches consistently because they beat heat, the most destructive element of wear in press clutches.

Less heat is generated when the Danly clutch engages because ingenious design has eliminated a large proportion of the pick-up load involved in starting clutch parts. Forced air cooling dissipates what little heat there is so that the Danly cool-running clutch, under full load, operates only 35° above room temperature .... just barely warm!



Cut-away view showing special method of lining mounting in the new Danly cool-running clutch. Discs of lining material are retained in a "spider" without riveting.

Close-up of stamping of operation performed showing finished lower radiator grill bar. Two pieces are formed at each stroke.

CHECK THESE
EXCLUSIVE DANLY PRESS FEATURES

- ✔ cool-running clutch
- ✔ extra rigidity
- ✔ complete pressure lubrication
- ✔ special controls—sensitive reaction
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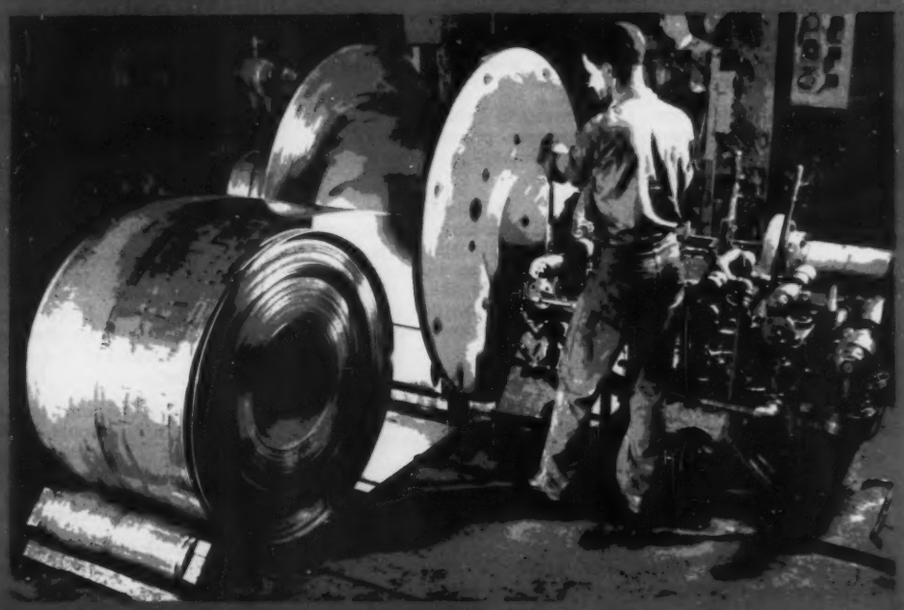
THE IRON AGE

METAL INDUSTRY FACTS ISSUE SECTION 2

STEEL PRODUCTION
STEEL PRICES AND MARKETS



OUTPUT

PRICES

CAPACITIES

WORLD PRODUCTION

HIGHLIGHTS OF '49

SPOTLIGHTING 1949

Important Events Briefly Reviewed

Jan. 13—Steelmaking scrap prices break . . . IRON AGE scrap composite falls from $43.00 to $40.92 per gross ton.

Jan. 20—New England studies possibilities of estabing steel mill there. . . .

Feb. 3—Appliance makers halt conversion deals . . . some fail to take full steel quotas . . . gray market oil country pipe prices off $80 to $100 a ton below 1948 high.

Feb. 10—Steelmaking scrap price slide continues. IRON AGE composite drops $2.84 a ton.

Feb. 17—Steel ingot rate at 100 pct of capacity . . . fifth consecutive week of 100 pct or better operations . . . Senate Small Business Committee calls steel distribution "alarming," calls for capacity-demand study.

Mar. 3—Steel firms cutting above-average prices . . . cancellations increasing but orders and backlogs remain heavy . . . Federal voluntary steel allocation program cut back by 137,000 tons a month.

Mar. 17—Republic buys into iron ore venture of Liberia Mining Co.

Mar. 24—Steel market returning to "normal" . . . gray market dead . . . refrigerator prices slashed . . . conversion ingot prices slashed . . . automakers ask for more steel.

Mar. 31—Scrap prices break . . . IRON AGE composite drops $3.75 a ton to $31.17 . . . decline in steel buying predicted . . . steel quota system starts cracking as mills book more summer business than they could produce. . . . Kaiser Steel (Mar. 22) practically wipes out the $30 a ton price advance made following RFC loan turndown in August, 1948.

Apr. 7—Financial analysis reveals 1948 steel company earnings 32 pct higher than in 1947 . . . scrap market collapse continues with No. 1 heavy melting steel prices off $4 to $6 a ton at Chicago, Philadelphia and Pittsburgh.

Apr. 28—U. S. Supreme Court, in Rigid Conduit Case, rules that basing point selling violates Federal Trade Commission Act.

May 5—First quarter steel profits 70 pct above same 1948 period.

May 12—USWA announces 1949 demands: Wage increase (unspecified); insurance at 8.4¢ per hr; and non-contributory pensions.

June 2—Eastern merchant furnaces piling up more iron than they can sell . . . structural steel competition keen . . . sheet buyers get fussy about quality . . . ingot rate drops below 90 for first time . . . some consumers peddling surplus steel inventory.

June 16—Scrap sags . . . IRON AGE scrap composite down to $20.92, against $43.00 in January.

June 23—U. S. Steel and USWA open negotiations on new contract (June 15) . . . Automakers scoff at prophets of recession, refuse to cut schedules.

June 30—Steel consumers speculate about possible lower prices . . . Ingot operating rate drops to 80 pct of capacity . . . Steelmaking scrap composite falls to $19.33, which proves to be 1949 low.

July 7—Steelmaking rate, abetted by holiday, sinks to 63.5 pct . . . 3-day week begins in coal mines on July 6.

July 14—Steel-union talks broken off after "hopeless" deadlock (July 6) . . . union authorizes strike . . . President appoints fact-finding board (July 12).

July 21—Steel strike deadline extended from July 16 to Sept. 14 . . .

July 28—Steel order volume picks up . . . buyers ease pressure for price cuts . . . steel labor fact finding board opens hearings.

Aug. 18—Steel orders increasing—partly strike hedging.

Sept. 1—Appliance output continues to improve . . . August steel rate pleasant surprise to many in industry . . . sheet quota system predicted . . . rail freight rates rise.

Sept. 6—Scrap market hectic and stronger.

Sept. 15—Steel fact finding board reports: turns down wage increase, recommends insurance and non-contributory pensions (Sept. 10) steel strike truce extended to Sept. 25.

Sept. 22—Coal miners strike (Sept. 19) . . . Weirton taps world's largest (550-ton) stationary open-hearth furnace.

Sept. 29—Steel strike truce extended to Oct. 1 at request of President Truman as "bargaining" is resumed . . . A. O. Smith to build line pipe mill at Houston.

Oct. 6—Steel strike hits 90 pct of industry at 12.01 a.m. Oct. 1 . . . 500,000 steel workers idle.

Oct. 13—Steel buyers continue run on warehouse bank . . . smaller fabricators begin curtailments . . . National Tube to build line pipe mill at Houston.

Nov. 3—Bethlehem signs with steelworkers union: No wage boost, $100 minimum monthly pension after 25 years service guaranteed on non-contributory basis, contributory social insurance . . . except for a few big companies, most third quarter steel company earnings drop.

Nov. 10—Jones & Laughlin, Republic, Youngstown Sheet & Tube sign with steel union on Bethlehem pattern.

Nov. 17—U. S. Steel (Nov. 11) Inland, Wheeling, Great Lakes and others sign with steelworkers . . . strike is 95 pct over . . . steelmaking costs rising . . . pension costs will add to them . . . scrap is stronger . . . most steel companies go on quota allocations system . . . coal strike called off until Nov. 30 (Nov. 10).

Nov. 24—Steel shortage is back . . . gray market and conversion deal reappear but buyers are cautious.

Dec. 1—Steelmaking rate stages fast comeback . . . passes prestrike level to hit 87.5 pct . . . smaller firms announce scattered price increases . . . five steel companies sign to participate in huge Quebec-Labrador iron ore development.

Dec. 8—Coal miners go back on 3-day week (Dec. 5) after 2-day strike.

Dec. 22—U. S. Steel Corp. raises base and extra prices of steel by average of $2 a ton each (Dec. 16). Other producers quickly begin meeting U. S. Steel quotations.

Quick Guide to section No. 2

A complete cross-referenced index is on p. 3.

Metal Industry Facts

Steel production
Steel prices and markets

ROLLING MILLS DISMANTLED IN 1949

*Source: THE IRON AGE

Name of Company	Location of Works	Products
Allegheny Ludlum Steel Corp.	Brackenridge, Pa.	Stainless bars
Crucible Steel Co. of America	Pittsburgh (LaBelle works)	Blooms, slabs

BLAST FURNACES COMPLETED OR ENLARGED IN 1949

Source: THE IRON AGE

Company	Number of Furnaces	Annual Capacity	Location	Operation Started	Remarks
Tennessee Coal, Iron & Railroad	1	406,231*	Fairfield, Ala.	April	Enlarged diameter from 25 ft to 27 ft 3 in.
Kaiser Steel Co.	1	414,910	Fontana, Cal.	October	Total net capacity gain 52,683 tons
Total blast furnaces (net increase)		467,593			

* Not a net gain. See remarks.

STEEL INGOT PRODUCTION

Openhearth, Bessemer and Electric Furnace Ingots and Steel for Castings—Net Tons; U. S. Only
For data previous to 1924, see statistical supplement, THE IRON AGE, January 4, 1940

Source: American Iron & Steel Institute

	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936
Jan.	4,107,060	4,719,919	4,656,029	4,302,172	4,531,172	5,115,195	4,288,212	2,882,540	1,686,665	1,157,745	2,276,596	3,279,473	3,474,353
Feb.	4,305,501	4,223,613	4,264,863	4,327,341	4,590,842	4,920,348	4,579,761	2,892,154	1,681,421	1,221,664	2,521,472	3,169,909	3,378,587
March	4,733,607	4,721,111	5,035,081	5,148,330	5,117,384	5,760,878	4,826,571	3,468,208	1,627,030	1,022,675	3,190,040	3,273,910	3,810,436
April	3,767,877	4,033,752	4,626,271	4,685,249	4,888,226	5,626,610	4,664,182	3,141,887	1,429,848	1,531,813	3,346,922	3,017,177	4,494,782
May	2,970,710	3,888,883	4,425,910	4,594,340	4,776,766	6,008,754	4,520,520	2,897,385	1,277,302	2,250,236	3,975,202	3,009,245	4,614,529
June	2,324,411	3,606,900	4,207,512	3,969,129	4,250,736	5,573,076	3,879,960	2,416,078	1,038,102	2,919,687	3,487,612	2,580,771	4,543,888
July	2,112,991	3,471,854	4,095,783	3,637,255	4,320,783	5,513,546	3,316,654	2,143,351	915,738	3,607,288	1,697,879	2,591,240	4,473,940
Aug.	2,872,652	3,850,644	4,492,374	3,971,467	4,744,291	5,614,144	3,473,898	1,949,462	961,153	3,260,279	1,574,649	3,331,770	4,782,442
Sept.	3,181,798	3,927,822	4,409,463	3,710,754	4,709,416	5,146,744	3,223,766	1,754,817	1,125,892	2,599,370	1,446,551	3,227,876	4,744,841
Oct.	3,516,891	4,377,214	4,591,053	3,764,573	5,279,460	5,154,063	3,055,972	1,805,653	1,233,957	2,373,729	1,689,272	3,590,945	5,182,430
Nov.	3,512,087	4,393,068	4,175,502	3,549,711	4,844,460	4,002,365	2,510,820	1,807,315	1,171,710	1,731,930	1,836,068	3,599,687	4,941,014
Dec.	4,016,316	4,469,629	3,906,230	3,604,731	4,562,175	3,299,766	2,246,742	1,477,529	977,389	2,047,780	2,239,126	3,511,702	5,056,843
Total	41,421,921	49,684,409	52,886,071	49,264,052	56,615,711	61,735,509	44,589,058	28,606,379	15,123,207	25,724,196	29,181,329	38,183,705	53,449,085

	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949†
Jan.	5,398,326	1,984,815	3,663,004	5,764,723	6,928,085	7,112,106	7,424,522	7,892,603	7,204,312	3,872,887	7,222,612	7,490,878	8,183,495
Feb.	5,050,824	1,942,795	3,448,120	4,525,797	6,237,900	6,512,535	6,824,604	7,194,009	6,652,765	1,392,662	6,430,401	6,948,017	7,480,724
March	5,970,247	2,293,884	3,929,387	4,389,183	7,131,641	7,392,111	7,674,578	7,826,257	7,705,929	6,508,764	7,316,974	7,618,770	8,387,927
April	5,801,540	2,196,413	3,431,600	4,100,474	6,756,949	7,121,291	7,373,703	7,593,688	7,289,887	5,801,195	7,051,842	6,224,487	7,785,276
May	5,894,260	2,061,169	3,372,636	4,967,782	7,053,238	7,382,578	7,549,691	7,702,576	7,449,667	4,072,820	7,339,014	7,580,642	7,589,722
June	4,787,710	1,868,848	3,606,729	5,657,443	6,800,730	7,015,302	7,039,353	7,234,257	6,840,522	5,625,773	6,977,714	7,265,249	6,498,201
July	5,212,832	2,259,677	3,648,639	5,724,625	6,821,682	7,144,958	7,407,876	7,948,387	6,985,571	6,618,683	6,578,685	7,075,517	5,779,122
Aug.	5,580,683	2,903,805	4,341,726	6,186,383	7,000,957	7,227,655	7,586,464	7,498,913	5,735,317	6,924,522	6,991,152	7,446,834	6,714,744
Sept.	4,907,592	3,029,736	4,681,601	6,056,246	6,819,706	7,057,519	7,514,339	7,235,111	5,982,475	6,555,586	6,797,457	7,424,844	6,590,189
Oct.	3,881,819	3,554,912	6,223,126	6,644,542	7,242,683	7,579,514	7,814,117	7,620,885	5,596,776	6,951,742	7,570,152	7,996,895	926,082
Nov.	2,464,793	4,072,676	6,292,322	6,469,107	6,969,987	7,179,812	7,371,975	7,278,719	6,200,466	6,457,771	7,242,427	7,797,558	4,216,262
Dec.	1,685,273	3,583,253	5,958,893	6,495,357	7,163,999	7,304,540	7,255,144	7,336,170	6,057,937	5,760,501	7,375,641	7,780,779	7,480,000*
Total	58,635,899	31,751,983	52,797,783	68,981,662	82,927,557	86,029,921	88,836,366	89,641,575	79,701,624	66,602,706	84,894,071	88,640,470	77,560,000*

†Preliminary. *Estimate.

CONSUMPTION OF ROLLED AND DRAWN STEEL

1948 Consumption of All Grades by the Metalworking Industry, net tons

Source: THE IRON AGE

STATE	Hot-Rolled Sheets and Strip Including Galvanized	Cold-Rolled Sheets and Strip	Tin and Terne Plate Blackplate	Plates	Structural Shapes	Hot-Rolled Bars	Cold-Finished Bars	Pipe and Tubes	Wire and Wire Rods	Unclassified	Total	Pct. of Total
Alabama	54,380	26,304	1,182	76,583	81,427	43,531	5,333	17,012	15,506	21,475	342,733	0.75
Arizona	3,814	1,863	51	4,798	13,347	4,155	276	1,240	549	2,115	32,208	0.07
Arkansas	3,369	2,716	2,129	2,373	5,215	2,147	358	764	849	1,273	21,191	0.05
California	384,900	223,477	454,758	288,341	255,841	176,358	42,505	88,203	94,214	106,951	2,095,548	4.56
Colorado	14,905	6,737	2,649	19,693	22,106	16,745	2,739	5,179	2,530	8,102	101,385	0.22
Connecticut	251,832	266,159	16,781	79,467	25,067	190,101	81,203	65,817	165,607	52,660	1,194,694	2.60
Delaware	12,291	4,644	263	44,745	14,840	5,674	1,227	3,322	3,786	8,267	99,059	0.22
District of Columbia	2,488	1,532	117	2,822	6,230	5,839	1,496	834	318	1,498	23,174	0.05
Florida	18,000	8,207	53,422	13,681	14,129	8,705	1,018	2,010	878	3,811	121,861	0.28
Georgia	47,854	21,403	9,408	24,620	19,677	16,913	4,228	7,901	10,825	7,478	170,103	0.37
Idaho	802	384	21	756	1,045	1,885	379	318	553	419	6,762	0.02
Illinois	1,090,245	770,380	908,313	578,384	379,790	1,036,269	271,257	177,755	376,483	317,029	5,905,885	12.85
Indiana	708,255	477,368	70,606	216,193	133,013	468,969	127,593	82,378	112,441	119,694	2,516,510	5.48
Iowa	129,149	50,894	3,889	61,812	55,675	119,554	27,456	22,094	23,623	31,046	525,192	1.14
Kansas	25,028	13,537	619	32,061	30,271	24,188	4,425	9,494	3,377	8,501	151,501	0.33
Kentucky	77,224	56,836	46,078	32,214	26,394	44,733	9,474	15,568	10,083	29,398	348,022	0.76
Louisiana	32,790	8,550	50,063	24,939	19,039	8,657	1,382	7,474	1,847	4,082	158,843	0.35
Maine	4,557	3,497	32,886	7,694	6,398	7,312	3,235	2,495	4,472	1,412	73,958	0.16
Maryland	150,304	92,957	264,050	64,232	25,347	26,020	9,386	10,941	23,458	21,380	688,075	1.50
Massachusetts	287,051	201,151	54,618	144,513	82,272	205,643	70,403	53,247	134,943	81,390	1,315,231	2.88
Michigan	1,967,594	2,397,759	58,930	410,075	154,624	1,149,191	311,643	148,880	276,777	197,848	7,073,321	15.39
Minnesota	82,269	55,060	46,884	60,600	56,456	71,476	20,402	20,089	17,970	22,177	453,403	0.99
Mississippi	2,521	882	82	11,154	4,388	2,910	676	1,173	2,039	1,957	27,782	0.06
Missouri	198,432	135,880	76,154	110,180	61,719	89,947	25,144	39,497	51,286	35,135	823,374	1.79
Montana	1,153	135	8	2,826	1,673	1,081	110	1,440	188	156	8,770	0.02
Nebraska	29,828	11,367	858	16,043	25,840	18,722	3,707	4,515	2,667	6,384	119,931	0.26
Nevada	104	7	1	501	159	110	17	164	10	41	1,114	.....
New Hampshire	8,749	5,068	290	9,644	4,571	7,606	2,878	1,801	11,683	1,850	54,138	0.12
New Jersey	325,447	237,507	312,480	176,543	110,974	188,917	56,213	82,529	120,480	73,809	1,684,699	3.66
New Mexico	312	91	5	180	157	98	18	31	21	43	932	.....
New York	681,742	501,092	352,484	440,221	236,621	441,253	143,345	115,378	142,992	177,228	3,232,356	7.04
North Carolina	11,918	7,301	314	8,747	15,185	11,237	2,686	2,875	4,331	3,853	68,447	0.15
North Dakota	802	290	30	1,486	4,495	1,374	45	187	143	771	9,603	0.02
Ohio	1,383,791	1,108,124	213,011	571,659	331,836	838,364	281,757	225,538	374,599	305,601	5,634,335	12.26
Oklahoma	19,775	5,941	360	51,975	49,116	23,717	2,802	15,448	2,751	9,791	181,676	0.39
Oregon	14,172	9,990	31,029	11,756	12,277	10,510	2,462	3,780	4,337	4,902	105,215	0.23
Pennsylvania	997,057	672,793	352,875	1,065,941	584,863	850,001	119,783	218,713	269,582	367,066	5,498,654	11.96
Rhode Island	23,839	28,100	21,266	9,888	6,084	43,610	16,395	6,151	37,178	4,112	196,603	0.43
South Carolina	2,235	1,387	59	7,577	3,850	1,378	559	789	1,010	1,203	20,027	0.04
South Dakota	2,266	870	31	929	998	1,421	350	239	155	400	7,659	0.02
Tennessee	63,538	55,286	10,347	55,590	37,739	26,879	6,244	20,317	10,567	17,002	303,509	0.66
Texas	99,257	34,005	133,994	108,383	111,537	97,149	10,831	33,927	14,835	31,556	675,474	1.47
Utah	3,969	1,247	8,711	9,222	9,559	4,586	508	3,366	1,024	1,674	43,886	0.09
Vermont	6,447	6,317	219	3,052	2,667	6,403	4,361	1,137	1,668	1,383	35,654	0.08
Virginia	29,859	15,184	11,895	88,511	61,022	25,100	2,022	8,579	5,680	12,822	280,674	0.57
Washington	29,245	17,638	52,633	36,674	21,633	26,834	4,439	7,633	4,333	8,590	209,712	0.46
West Virginia	46,859	42,293	71,146	33,745	23,049	19,641	3,584	9,797	5,201	10,027	285,342	0.58
Wisconsin	803,297	370,022	51,508	863,866	155,846	386,286	100,772	83,697	92,330	153,933	3,061,557	6.66
Wyoming	339	364	14	138	94	430	110	87	86	122	1,784	.....
National Total	10,118,074	7,960,796	3,779,519	5,886,987	3,306,155	6,757,627	1,789,220	1,631,848	2,442,105	2,279,215	45,951,546	100.00

Metal Industry Facts

Steel production
Steel prices and markets

Merchant Bars at Pittsburgh

(cents per pound)

Source: THE IRON AGE

	1929	1933	1934	1936	1937	1938
Jan.	1.90	1.60	1.75	1.85	2.20	2.45
Feb.	1.90	1.60	1.75	1.85	2.20	2.45
Mar.	1.90	1.60	1.75	1.85	2.40	2.45
Apr.	1.95	1.60	1.79	1.85	2.45	2.45
May	1.95	1.60	1.90	1.85	2.45	2.45
June	1.95	1.60	1.90	1.85	2.45	2.41
July	1.95	1.60	1.82	1.95	2.45	2.25
Aug.	1.95	1.60	1.80	1 95	2.45	2.25
Sept.	1.94	1.60	1.80	1.95	2.45	2.25
Oct.	1.90	1.75	1.80	2.07	2.45	2.25
Nov.	1.90	1.75	1.80	2.05	2.45	2.25
Dec.	1.90	1.75	1.80	2.03	2.45	2.25
Average	1.92	1.64	1.81	1.95	2.40	2.35

	1939*	1945*	1946	1947	1948	1949
Jan.	2.25	2.15	2.25	2.60	2.90	3.45
Feb.	2.25	2.15	2.38	2.60	2.90	3.45
Mar.	2.25	2.15	2.50	2.60	2.90	3.43
Apr.	2.25	2.15	2.50	2.60	2.90	3.35
May	2.19	2.17	2.50	2.60	2.87	3.35
June	2.15	2.25	2.50	2.60	2.87	3.35
July	2.15	2.25	2.50	2.66	3.00	3.35
Aug.	2.15	2.25	2.50	2.90	3.45	3.35
Sept.	2.15	2.25	2.50	2.90	3.45	3.35
Oct.	2.15	2.25	2.50	2.90	3.45	3.35
Nov.	2.15	2.25	2.50	2.90	3.45	3.39
Dec.	2.15	2.25	2.56	2.90	3.45	3.38
Average	2.19	2.21	2.47	2.73	3.13	3.37

* 1940–1944 = 2.15¢.

Cold-Finished Steel Bars at Pittsburgh

(cents per pound)

Source: THE IRON AGE

	1929	1933	1934	1936	1937	1938
Jan.	1.90	1.70	2.10	2.10	2.55	2.90
Feb.	1.90	1.70	2.10	2.10	2.55	2.90
Mar.	1.90	1.70	2.10	2.10	2.83	2.90
Apr.	1.95	1.70	2.10	2.10	2.90	2.90
May	1.95	1.70	2.10	2.10	2.90	2.90
June	1.95	1.70	2.10	2.10	2.90	2.70
July	1.95	1.70	2.10	2.25	2.90	2.70
Aug.	1.95	1.70	2.10	2.25	2.90	2.70
Sept.	1.94	1.95	2.10	2.25	2.90	2.70
Oct.	1.90	1.95	2.10	2.35	2.90	2.70
Nov.	1.90	1.95	2.10	2.35	2.90	2.70
Dec.	1.90	2.10	2.10	2.35	2.90	2.70
Average	1.92	1.80	2.10	2.20	2.84	2.78

	1939*	1945*	1946	1947	1948	1949
Jan.	2.70	2.65	2.75	3.20	3.55	3.98
Feb.	2.70	2.65	2.93	3.20	3.55	3.98
Mar.	2.70	2.65	3.10	3.20	3.55	3.98
Apr.	2.70	2.65	3.10	3.20	3.55	3.98
May	2.68	2.65	3.10	3.20	3.50	3.98
June	2.65	2.65	3.10	3.20	3.50	3.98
July	2.65	2.65	3.10	3.27	3.52	3.98
Aug.	2.65	2.73	3.10	3.55	3.98	3.98
Sept.	2.65	2.75	3.10	3.55	3.98	3.98
Oct.	2.65	2.75	3.10	3.55	3.98	3.98
Nov.	2.65	2.75	3.10	3.55	3.98	3.98
Dec.	2.65	2.75	3.10	3.55	3.98	4.01
Average	2.67	2.69	3.06	3.35	3.74	3.98

* 1940–1944 = 2.65¢.

Galvanized Sheets at Pittsburgh

(cents per pound*)

Source: THE IRON AGE

	1929	1932	1933	1934	1936	1937
Jan.	3.60	2.80	2.68	2.85	3.10	3.40
Feb.	3.60	2.75	2.50	2.85	3.10	3.40
Mar.	3.60	2.85	2.60	2.85	3.10	3.72
Apr.	3.60	2.85	2.63	2.95	3.10	3.80
May	3.60	2.85	2.70	3.25	3.10	3.80
June	3.60	2.85	2.70	3.25	3.10	3.80
July	3.60	2.85	2.85	3.13	3.20	3.80
Aug.	3.50	2.81	2.85	3.10	3.20	3.80
Sept.	3.50	2.75	2.85	3.10	3.20	3.80
Oct.	3.50	2.85	2.85	3.10	3.20	3.80
Nov.	3.48	2.85	2.85	3.10	3.20	3.80
Dec.	3.40	2.85	2.85	3.10	3.40	3.80
Average	3.55	2.83	2.74	3.05	3.17	3.73

	1938†	1945†	1946	1947	1948	1949
Jan.	3.80	3.50	3.70	3.55	3.95	4.40
Feb.	3.80	3.50	3.88	3.55	3.95	4.40
Mar.	3.80	3.62	4.05	3.55	3.95	4.40
Apr.	3.80	3.65	4.05	3.55	3.95	4.40
May	3.80	3.66	4.05	3.55	3.91	4.40
June	3.68	3.70	4.05	3.55	3.91	4.40
July	3.50	3.70	4.05	3.63	4.03	4.40
Aug.	3.50	3.70	4.05	3.95	4.40	4.40
Sept.	3.50	3.70	4.05	3.95	4.40	4.40
Oct.	3.45	3.70	4.05	3.95	4.40	4.40
Nov.	3.50	3.70	4.05	3.95	4.40	4.40
Dec.	3.50	3.70	*3.65	3.95	4.40	4.40
Average	3.64	3.65	3.99	3.72	4.13	4.40

* Based on 10 gage since December 1946; 24 gage base up to that time.
† 1939–1944 = 3.50¢.

Stainless Steel Sheets, No. 304

(cents per pound)

Source: THE IRON AGE

	1937*	1946*	1947	1948	1949
Jan.	35.00	36.00	38.95	39.00	41.25
Feb.	35.00	36.00	39.00	39.00	41.25
March	36.00	36.00	39.00	39.00	41.25
April	36.00	38.21	39.00	39.00	40.81
May	36.00	38.95	39.00	39.00	39.50
June	36.00	38.95	39.00	39.00	39.50
July	36.00	38.95	39.00	39.00	39.50
Aug.	36.00	38.95	39.00	40.80	39.50
Sept.	36.00	38.95	39.00	40.37	39.50
Oct.	36.00	38.95	39.00	40.81	39.50
Nov.	36.00	38.95	39.00	41.25	39.50
Dec.	36.00	38.95	39.00	41.25	39.50
Average	35.90	38.15	38.99	39.79	40.08

* 1938-1945 = 36.00¢.

WEEKLY PRICE QUOTATIONS

Current quotations on commodities listed in this section are published every week in the Price Section of The Iron Age.

High Speed Tool Steel 18-4-1

(cents per pound)

Source: THE IRON AGE

	1937	1938*	1946*	1947	1948	1949
Jan.	80.0	80.0	67.00	72.494	82.0	90.5
Feb.	67.0	76.8	69.792	72.494	82.0	90.5
Mar.	67.0	67.0	72.494	72.494	82.0	90.5
Apr.	67.0	67.0	72.494	74.00	82.0	90.5
May	67.0	67.0	72.494	74.00	82.0	90.5
June	67.0	67.0	72.494	74.00	82.0	90.5
July	67.0	67.0	72.494	74.00	82.0	90.5
Aug.	67.0	67.0	72.494	82.00	90.5	90.5
Sept.	80.0	67.0	72.494	82.00	90.5	90.5
Oct.	80.0	67.0	72.494	82.00	90.5	90.5
Nov.	80.0	67.0	72.494	82.00	90.5	90.5
Dec.	80.0	67.0	72.494	82.00	90.5	90.5
Average	70.1	68.9	71.81	75.58	85.5	90.5

* 1939–1945 = 67.0¢.

THE IRON AGE FINISHED STEEL COMPOSITE PRICE

(cents per pound)

	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940
Jan.	2.278	2.229	1.991	1.852	1.830	1.958	2.065	2.076	2.323	2.584	2.354	2.305
Feb.	2.278	2.212	1.996	1.843	1.812	1.958	2.065	2.065	2.323	2.581	2.354	2.305
March	2.276	2.208	1.992	1.852	1.808	1.958	2.065	2.055	2.532	2.578	2.354	2.305
April	2.304	2.400	1.974	1.892	1.780	2.007	2.065	2.062	2.584	2.578	2.354	2.267
May	2.307	2.118	1.968	1.891	1.770	2.154	2.065	2.062	2.584	2.569	2.308	2.305
June	2.318	2.093	1.961	1.888	1.788	2.154	2.065	2.067	2.584	2.513	2.283	2.305
July	2.312	2.056	1.940	1.892	1.841	2.107	2.065	2.139	2.584	2.359	2.283	2.305
Aug.	2.294	2.031	1.943	1.889	1.851	2.065	2.065	2.139	2.584	2.359	2.283	2.305
Sept.	2.282	2.011	1.943	1.883	1.879	2.065	2.065	2.146	2.584	2.357	2.283	2.305
Oct.	2.270	2.001	1.942	1.873	1.955	2.065	2.076	2.172	2.584	2.320	2.283	2.305
Nov.	2.265	1.993	1.937	1.866	1.947	2.065	2.076	2.172	2.584	2.354	2.288	2.305
Dec.	2.278	1.975	1.902	1.861	1.956	2.065	2.078	2.263	2.584	2.354	2.305	2.305
Average	2.286	2.111	1.957	1.873	1.851	2.051	2.068	2.118	2.536	2.459	2.311	2.273

	1945	1946	1947	1948	1949
	2.412	2.484	2.877	3.193	3.720
	2.427	2.555	2.884	3.125	3.719
	2.432	2.719	2.881	3.241	3.715
	2.433	2.719	2.884	3.241	3.709
1941	2.436	2.719	2.884	3.214	3.706
1942	2.464	2.719	2.884	3.211	3.705
1943					
1944	2.464	2.719	2.914	3.293	3.705
	2.464	2.719	3.193	3.720	3.705
	2.464	2.719	3.193	3.720	3.705
	2.464	2.719	3.193	3.720	3.705
	2.464	2.719	3.193	3.720	3.705
	2.464	2.747	3.193	3.720	3.756*
2.396	2.449	2.686	3.014	3.434	3.713

THE IRON AGE finished steel composite price is a weighted average of the base prices of 10 major steel products which account for the majority of finished steel shipments. It is weighted by the percentage that each of these products is to total finished steel shipments during the base period. With the base constant, the only changes in the composite from 1929 through 1940 or from 1941 through 1949 occur when one or more steel products prices were changed.

In the composite shown here there are two base periods. For the years 1929 through 1940 the base is finished steel shipments for 1929-1939 inclusive. For 1941 through 1949 the base is finished steel shipments for the 7 years 1937 to 1940 inclusive and 1946 to 1948 inclusive. Two base periods are used because of basic changes in the shipment pattern in the 20 years covered. In each case the products remain the same. They are hot-rolled bars, structural shapes, plates, rails, pipe, wire and hot- and cold-rolled sheets and strip. To eliminate variations due to nonferrous metals price fluctuations, no coated products are included.

The composite price was first published on a weighted basis on August 28, 1941, at which time it was revised for the years 1929 to 1940 inclusive. Those figures are shown here. In 1941, 1942 and 1943 the composite was based on shipments for those years and on November 10, 1944, it was changed to reflect quarterly shipments. After consultation with industrial and government statisticians all figures from 1941 forward were discarded as too sensitive. The revision, shown here, has been substituted from 1941 to the present because it is a more accurate method of reflecting price changes, eliminating changes due to short term and seasonal variations in the shipment pattern. Details of this revision appeared in THE IRON AGE, May 12, 1949, p. 139.

Bright Wire at Pittsburgh

Source: THE IRON AGE

(cents per pound)

	1929	1931	1932	1933	1934	1937
Jan.	2.50	2.20	2.20	2.16	2.20	2.60
Feb.	2.50	2.20	2.20	2.10	2.20	2.60
Mar.	2.50	2.20	2.20	2.10	2.20	2.84
Apr.	2.50	2.20	2.20	2.10	2.23	2.90
May	2.50	2.20	2.20	2.10	2.30	2.90
June	2.50	2.20	2.20	2.10	2.30	2.90
July	2.50	2.20	2.20	2.10	2.30	2.90
Aug.	2.43	2.20	2.20	2.10	2.30	2.90
Sept.	2.40	2.20	2.20	2.10	2.30	2.90
Oct.	2.40	2.20	2.20	2.10	2.30	2.90
Nov.	2.40	2.20	2.20	2.10	2.30	2.90
Dec.	2.40	2.20	2.20	2.20	2.30	2.90
Average	2.46	2.20	2.20	2.11	2.27	2.84

	1938*	1945*	1946	1947	1948	1949
Jan.	2.90	2.60	2.75	3.30	3.55	4.33
Feb.	2.90	2.60	2.90	3.30	3.55	4.33
Mar.	2.90	2.60	3.05	3.30	3.55	4.22
Apr.	2.90	2.60	3.05	3.30	3.55	4.15
May	2.90	2.63	3.06	3.30	3.60	4.15
June	2.84	2.75	3.05	3.30	3.60	4.15
July	2.60	2.75	3.05	3.35	3.77	4.15
Aug.	2.60	2.75	3.05	3.55	4.33	4.15
Sept.	2.60	2.75	3.05	3.55	4.33	4.15
Oct.	2.60	2.75	3.05	3.55	4.33	4.15
Nov.	2.60	2.75	3.06	3.55	4.33	4.15
Dec.	2.60	2.75	3.10	3.55	4.33	4.29
Average	2.74	2.69	3.02	3.41	3.90	4.20

* 1939–1944 = 2.60¢.

Hot-Rolled Strip at Pittsburgh

Source: THE IRON AGE

(cents per pound)

	1929	1933	1934	1936	1937	1938
Jan.	1.80	1.45	1.75	1.85	2.15	2.40
Feb.	1.80	1.45	1.75	1.85	2.15	2.40
Mar.	1.80	1.45	1.75	1.85	2.35	2.40
Apr.	1.90	1.45	1.81	1.85	2.40	2.40
May	1.90	1.49	2.00	1.85	2.40	2.38
June	1.90	1.55	2.00	1.85	2.40	2.27
July	1.90	1.60	1.88	1.95	2.40	2.15
Aug.	1.90	1.64	1.85	1.95	2.40	2.15
Sept.	1.97	1.68	1.85	1.95	2.40	2.15
Oct.	1.90	1.75	1.85	1.95	2.40	2.03
Nov.	1.90	1.75	1.85	1.95	2.40	2.15
Dec.	1.90	1.75	1.85	2.11	2.40	2.15
Average	1.88	1.58	1.85	1.91	2.35	2.25

	1939	1940†	1946*	1947	1948	1949
Jan.	2.15	2.10	2.10	2.50	2.80	3.28
Feb.	2.15	2.10	2.23	2.50	2.80	3.28
Mar.	2.15	2.10	2.35	2.50	2.80	3.28
Apr.	2.15	1.98	2.35	2.50	2.80	3.26
May	2.06	2.10	2.35	2.50	2.80	3.25
June	2.00	2.10	2.35	2.50	2.80	3.25
July	2.00	2.10	2.35	2.58	2.90	3.25
Aug.	2.00	2.10	2.35	2.80	3.28	3.25
Sept.	2.00	2.10	2.35	2.80	3.28	3.25
Oct.	2.00	2.10	2.35	2.80	3.28	3.25
Nov.	2.02	2.10	2.35	2.80	3.28	3.25
Dec.	2.10	2.10	2.47	2.80	3.28	3.25
Average	2.06	2.09	2.33	2.63	3.03	3.26

* Over 6 in.; add 0.10¢ for 6 in. and under from February through November 1946.
† 1941–1945 = 2.10¢.

Cold-Rolled Strip at Pittsburgh

(cents per pound)

Source: THE IRON AGE

	1929	1933	1934	1936	1937	1938
Jan.	2.85	1.88	2.40	2.60	2.85	3.20
Feb.	2.85	1.80	2.40	2.60	2.85	3.20
March	2.80	1.80	2.40	2.60	3.13	3.20
April	2.75	1.80	2.50	2.60	3.20	3.20
May	2.75	1.88	2.80	2.60	3.20	3.18
June	2.75	2.00	2.80	2.60	3.20	3.07
July	2.75	2.19	2.64	2.60	3.20	2.95
Aug.	2.75	2.25	2.60	2.60	3.20	2.95
Sept.	2.75	2.29	2.60	2.60	3.20	2.95
Oct.	2.75	2.40	2.60	2.60	3.20	2.83
Nov.	2.75	2.40	2.60	2.60	3.20	2.95
Dec.	2.75	2.40	2.60	2.80	3.20	2.95
Average	2.77	2.09	2.58	2.62	3.14	3.05

	1939	1940*	1946*	1947	1948	1949
Jan.	2.95	2.80	2.80	3.20	3.55	4.00
Feb.	2.95	2.80	2.93	3.20	3.55	4.00
March	2.95	2.80	3.05	3.20	3.55	4.00
April	2.95	2.68	3.05	3.20	3.55	4.00
May	2.86	2.80	3.05	3.20	3.53	4.00
June	2.80	2.80	3.05	3.20	3.53	4.00
July	2.80	2.80	3.05	3.27	3.85	4.00
Aug.	2.80	2.80	3.05	3.55	4.00	4.00
Sept.	2.80	2.80	3.05	3.55	4.00	4.00
Oct.	2.80	2.80	3.05	3.55	4.00	4.00
Nov.	2.80	2.80	3.05	3.55	4.00	4.00
Dec.	2.80	2.80	3.17	3.55	4.00	4.06
Average	2.86	2.79	3.03	3.35	3.78	4.01

* 1941–1945 = 2.80¢.

STEEL INGOT PRODUCTION IN THE UNITED STATES

Openhearth, Bessemer and Electric Steel Ingots and Steel for Castings

Percent of Capacity

Source: American Iron & Steel Institute

	1929	1931	1932	1933	1936	1937
Jan.	86.56	44.59	25.88	17.76	52.46	81.32
Feb.	92.21	50.07	26.62	20.75	54.61	84.26
Mar.	97.48	54.21	24.98	15.68	57.54	89.93
Apr.	98.32	50.71	22.67	24.26	70.09	90.24
May	101.68	45.29	19.61	34.51	69.68	88.79
June	97.38	39.00	16.42	46.24	70.85	74.47
July	93.51	33.58	14.09	55.45	67.71	78.37
Aug.	95.00	30.47	14.76	50.00	72.22	83.71
Sept.	90.14	28.39	17.89	41.29	74.16	76.19
Oct.	87.22	28.22	18.94	36.40	78.26	53.23
Nov.	69.94	29.17	18.57	27.43	77.05	38.18
Dec.	55.96	23.15	15.04	31.48	76.53	25.34
Average	88.76	37.99	19.67	33.52	68.45	72.33

	1938	1939	1940	1941	1942	1943
Jan.	29.14	52.69	83.40	96.90	94.50	96.80
Feb.	31.59	54.93	70.00	96.60	95.90	98.50
Mar.	33.67	56.52	63.50	99.70	98.20	100.00
Apr.	33.70	50.97	61.20	97.60	97.70	99.30
May	30.26	48.51	71.80	98.70	98.10	98.40
June	23.33	53.57	84.50	98.20	96.30	94.80
July	33.25	52.60	83.00	93.40	94.50	98.20
Aug.	42.63	62.45	89.50	95.70	95.40	98.30
Sept.	46.03	72.68	90.60	96.40	96.40	100.70
Oct.	52.19	89.52	96.10	99.00	100.00	101.20
Nov.	61.74	93.46	96.60	98.30	97.80	98.60
Dec.	52.72	85.91	94.10	98.10	96.60	94.20
Average	39.60	64.53	82.10	97.40	96.80	98.10

	1944	1945	1946	1947	1948	1949
Jan.	95.70	88.80	49.60	93.20	93.60	100.2
Feb.	97.00	90.80	19.80	91.90	93.00	101.4
Mar.	98.60	95.00	83.30	94.40	95.30	102.7
Apr.	98.80	92.80	77.50	93.90	80.40	98.4
May	97.10	91.80	52.20	94.70	94.80	92.9
June	94.10	87.10	74.40	92.90	93.80	82.2
July	94.30	86.30	84.90	85.10	88.70	70.9
Aug.	94.10	70.70	86.90	92.20	93.10	82.2
Sept.	94.00	76.30	86.90	90.80	96.10	83.5
Oct.	95.60	69.00	89.00	97.70	99.90	11.3
Nov.	94.30	78.90	85.40	96.50	100.50	53.3*
Dec.	92.60	74.80	73.90	95.40	97.7	92.0*
Average	95.50	83.50	72.50	93.00	94.1	80.8*

* Preliminary.

Hot-Rolled Sheets at Pittsburgh

(cents per pound)

Source: THE IRON AGE

	1929	1934	1936	1937	1938	1939
Jan.	2.10	1.75	1.85	2.15	2.40	2.15
Feb.	2.10	1.75	1.85	2.15	2.40	2.15
Mar.	2.10	1.75	1.85	2.35	2.40	2.16
Apr.	2.10	1.81	1.85	2.40	2.40	2.15
May	2.13	2.00	1.85	2.40	2.38	2.06
June	2.20	2.00	1.87	2.40	2.27	2.00
July	2.14	1.88	1.95	2.40	2.15	2.00
Aug.	2.10	1.85	1.95	2.40	2.15	2.00
Sept.	2.10	1.85	1.95	2.40	2.15	2.00
Oct.	2.10	1.85	1.95	2.40	2.03	2.00
Nov.	2.10	1.85	1.95	2.40	2.15	2.02
Dec.	2.18	1.85	2.15	2.40	2.15	2.10
Average	2.12	1.85	1.92	2.35	2.25	2.06

	1940*	1945*	1946	1947	1948	1949
Jan.	2.10	2.10	2.20	2.50	2.80	3.28
Feb.	2.10	2.10	2.31	2.50	2.80	3.28
Mar.	2.10	2.18	2.43	2.50	2.80	3.28
Apr.	2.10	2.20	2.43	2.50	2.80	3.26
May	1.98	2.20	2.43	2.50	2.77	3.25
June	2.10	2.20	2.43	2.50	2.77	3.25
July	2.10	2.20	2.43	2.56	2.89	3.25
Aug.	2.10	2.20	2.43	2.80	3.28	3.25
Sept.	2.10	2.20	2.43	2.80	3.28	3.25
Oct.	2.10	2.20	2.43	2.80	3.28	3.25
Nov.	2.10	2.20	2.43	2.80	3.28	3.25
Dec.	2.10	2.20	2.49	2.80	3.28	3.29
Average	2.09	2.18	2.40	2.63	3.00	3.26

* 1941–1944 = 2.10¢.

Cold-Rolled Sheets at Pittsburgh

(cents per pound)

Source: THE IRON AGE

	1929	1933	1934	1936	1937	1938
Jan.	4.10	2.35	2.75	2.95	3.25	3.55
Feb.	4.10	2.25	2.75	2.95	3.25	3.50
Mar.	4.10	2.30	2.75	2.95	3.49	3.46
Apr.	4.10	2.30	2.85	2.95	3.55	3.45
May	4.10	2.34	3.15	2.95	3.55	3.43
June	4.10	2.29	3.15	2.95	3.55	3.32
July	4.10	2.40	2.99	3.05	3.55	3.20
Aug.	4.08	2.47	2.95	3.05	3.55	3.20
Sept.	4.00	2.75	2.95	3.05	3.55	3.20
Oct.	4.00	2.75	2.95	3.05	3.55	3.06
Nov.	4.00	2.75	2.95	3.05	3.55	3.20
Dec.	3.98	2.75	2.95	3.25	3.55	3.20
Average	4.06	2.48	2.96	3.02	3.49	3.31

	1939	1940*	1946*	1947	1948	1949
Jan.	3.20	3.05	3.05	3.20	3.55	4.00
Feb.	3.20	3.05	3.16	3.20	3.55	4.00
Mar.	3.20	3.05	3.275	3.20	3.55	4.00
Apr.	3.20	2.93	3.275	3.20	3.55	4.00
May	3.11	3.05	3.275	3.20	3.49	4.00
June	3.05	3.05	3.275	3.20	3.49	4.00
July	3.05	3.05	3.275	3.27	3.82	4.00
Aug.	3.05	3.05	3.275	3.55	4.00	4.00
Sept.	3.05	3.05	3.275	3.55	4.00	4.00
Oct.	3.05	3.05	3.275	3.55	4.00	4.00
Nov.	3.05	3.05	3.275	3.55	4.00	4.00
Dec.	3.05	3.05	3.215	3.55	4.00	4.04
Average	3.10	3.04	3.242	3.35	3.73	4.00

* 1941–1945 = 3.05¢.

Plates at Pittsburgh

(cents per pound)

Source: THE IRON AGE

	1929	1932	1933	1934	1936	1937
Jan.	1.90	1.50	1.60	1.70	1.80	2.05
Feb.	1.90	1.50	1.60	1.70	1.80	2.05
Mar.	1.90	1.52	1.60	1.70	1.80	2.21
Apr.	1.95	1.60	1.55	1.74	1.80	2.25
May	1.95	1.60	1.50	1.85	1.80	2.25
June	1.95	1.60	1.53	1.85	1.80	2.25
July	1.95	1.60	1.60	1.81	1.90	2.25
Aug.	1.95	1.60	1.60	1.80	1.90	2.25
Sept.	1.95	1.60	1.60	1.80	1.90	2.25
Oct.	1.94	1.60	1.70	1.80	1.90	2.25
Nov.	1.90	1.60	1.70	1.80	1.90	2.25
Dec.	1.90	1.60	1.70	1.80	1.90	2.25
Average	1.93	1.57	1.61	1.78	1.85	2.21

	1938*	1945*	1946	1947	1948	1949
Jan.	2.25	2.10	2.25	2.65	2.95	3.50
Feb.	2.25	2.10	2.38	2.65	2.95	3.50
Mar.	2.25	2.20	2.50	2.65	2.95	3.50
Apr.	2.25	2.20	2.50	2.65	2.95	3.50
May	2.25	2.21	2.50	2.65	2.93	3.40
June	2.22	2.25	2.50	2.71	2.93	3.40
July	2.10	2.25	2.50	2.95	3.07	3.40
Aug.	2.10	2.25	2.50	2.95	3.50	3.40
Sept.	2.10	2.25	2.50	2.95	3.50	3.40
Oct.	2.10	2.25	2.50	2.95	3.50	3.40
Nov.	2.10	2.25	2.50	2.95	3.50	3.40
Dec.	2.10	2.25	2.50	2.95	3.50	3.44
Average	2.17	2.21	2.47	2.80	3.19	3.43

* 1939–1944 = 2.10¢.

Metal Industry Facts

Steel production
Steel prices and markets

STEEL RAILS AT PITTSBURGH, No. 1 OH

(per 100 lb.*)
Source: THE IRON AGE

	1929	1932	1933	1934	1936	1937		1938†	1945†	1946	1947	1948	1949
Jan.	$43.00	$43.00	$40.00	$36.37	$36.37	$39.00	Jan.	$42.50	$40.00	$43.00	$2.50	$2.75	$3.20
Feb.	43.00	43.00	40.00	36.37	36.37	39.00	Feb.	42.50	40.00	*43.19	2.50	2.75	3.20
Mar.	43.00	43.00	40.00	36.37	36.37	41.80	Mar.	42.50	42.25	43.39	2.50	2.75	3.20
Apr.	43.00	43.00	40.00	36.37	36.37	42.50	Apr.	42.50	43.00	43.39	2.50	2.75	3.20
May	43.00	43.00	40.00	36.37	36.37	42.50	May	42.50	43.00	43.39	2.50	2.70	3.20
June	43.00	43.00	40.00	36.37	36.37	42.50	June	42.50	43.00	43.39	2.50	2.70	3.20
July	43.00	43.00	40.00	36.37	36.37	42.50	July	42.50	43.00	43.39	2.50	2.80	3.20
Aug.	43.00	43.00	40.00	36.37	36.37	42.50	Aug.	42.50	43.00	43.39	2.75	3.20	3.20
Sept.	43.00	43.00	40.00	36.37	36.37	42.50	Sept.	41.25	43.00	43.39	2.75	3.20	3.20
Oct.	43.00	42.25	39.55	36.37	36.37	42.50	Oct.	40.00	43.00	43.39	2.75	3.20	3.20
Nov.	43.00	40.00	38.38	36.37	36.37	42.50	Nov.	40.00	43.00	43.39	2.75	3.20	3.20
Dec.	43.00	40.00	38.38	36.37	39.00	42.50	Dec.	40.00	43.00	47.36	2.75	3.20	3.26
Average	43.00	42.44	39.26	36.37	36.59	41.88	Average	41.77	42.44	43.67	2.60	2.93	3.21

* Prices quoted dollars per gross ton prior to Feb. 15, 1946. Net tons, Feb. 15 to Dec. 13, 1948.
† 1939-1944 = $40.00 per gross ton.

Cast Iron Pipe at New York

(net ton, 6-in. and larger)
Source: THE IRON AGE

	1929	1932	1933	1934	1936	1937		1938	1939*	1946*	1947	1948	1949
Jan.	$39.60	$30.20	$35.20	$43.00	$45.20	$48.00	Jan.	$53.00	$49.00	$57.20	$73.60	$89.18	$105.95
Feb.	39.35	29.70	35.30	43.00	45.20	48.00	Feb.	53.00	49.00	57.20	73.75	89.18	105.95
Mar.	38.60	28.40	35.30	43.00	45.20	51.00	Mar.	53.00	49.00	60.20	76.80	89.18	105.95
Apr.	37.40	28.20	35.30	43.00	45.20	53.00	Apr.	53.00	49.00	62.20	79.80	89.18	105.95
May	35.85	28.20	35.30	43.00	45.20	53.00	May	53.00	49.00	62.20	79.80	92.34	105.95
June	35.10	28.20	38.30	44.00	45.20	53.00	June	52.20	49.00	62.20	79.80	95.50	105.95
July	33.20	28.73	38.30	45.00	45.90	53.00	July	49.00	49.00	69.60	80.50	95.50	105.95
Aug.	33.60	31.10	38.30	45.00	45.90	53.00	Aug.	49.00	49.00	69.60	83.30	103.86	105.95
Sept.	33.60	31.30	38.30	45.00	45.90	53.00	Sept.	49.00	49.00	69.60	83.30	105.95	105.95
Oct.	34.60	33.30	38.00	45.00	45.90	53.00	Oct.	49.00	52.20	69.60	83.96	105.95	105.95
Nov.	34.60	33.30	43.00	45.00	45.90	53.00	Nov.	49.00	52.20	69.60	84.18	105.95	105.95
Dec.	34.60	34.30	43.00	45.00	47.90	53.00	Dec.	49.00	52.20	73.60	84.18	105.95	105.95
Average	35.84	30.41	37.81	44.08	45.71	52.00	Average	50.93	49.80	65.23	80.25	97.31	105.95

* 1940-1945 = $52.50.

Structural Shapes at Pittsburgh

(cents per pound)
Source: THE IRON AGE

	1929	1931	1932	1933	1934	1936		1937	1938*	1946*	1947	1948	1949
Jan.	1.90	1.64	1.50	1.60	1.70	1.80	Jan.	2.05	2.25	2.10	2.50	2.80	3.25
Feb.	1.90	1.65	1.50	1.60	1.70	1.80	Feb.	2.05	2.25	2.23	2.50	2.80	3.25
Mar.	1.90	1.65	1.52	1.60	1.70	1.80	Mar.	2.21	2.25	2.35	2.50	2.80	3.25
Apr.	1.95	1.65	1.60	1.60	1.74	1.80	Apr.	2.25	2.25	2.35	2.50	2.80	3.25
May	1.95	1.65	1.60	1.60	1.85	1.80	May	2.25	2.25	2.35	2.50	2.75	3.25
June	1.95	1.65	1.60	1.60	1.85	1.80	June	2.25	2.22	2.35	2.50	2.75	3.25
July	1.95	1.63	1.60	1.60	1.81	1.90	July	2.25	2.10	2.35	2.56	2.85	3.25
Aug.	1.95	1.60	1.60	1.60	1.80	1.90	Aug.	2.25	2.10	2.35	2.80	3.25	3.25
Sept.	1.95	1.60	1.60	1.60	1.80	1.90	Sept.	2.25	2.10	2.35	2.80	3.25	3.25
Oct.	1.90	1.60	1.60	1.70	1.80	1.90	Oct.	2.25	2.10	2.35	2.80	3.25	3.25
Nov.	1.90	1.60	1.60	1.70	1.80	1.90	Nov.	2.25	2.10	2.35	2.80	3.25	3.25
Dec.	1.90	1.60	1.60	1.70	1.80	1.90	Dec.	2.25	2.10	2.35	2.80	3.25	3.31
Average	1.92	1.62	1.57	1.68	1.78	1.85	Average	2.21	2.17	2.32	2.63	3.00	3.26

* 1939-1945 = 2.10¢.

Buttweld Steel Pipe at Pittsburgh

Source: THE IRON AGE
(per net ton)

Computed from list discounts, for carload lots; price for base size pipe, 1 to 3 in.; 1 in. only since August, 1947; ¾ to 3 in. prior to Apr. 13, 1931

	1929	1931	1932	1933	1934	1936
Jan.	$70.30	$66.50	$64.84	$65.00	$61.75	$68.40
Feb.	70.30	66.50	64.84	65.00	61.75	64.98
Mar.	70.30	66.50	64.84	65.00	61.75	61.80
Apr.	70.30	66.50	64.84	58.00	63.41	61.00
May	70.30	63.59	64.84	58.00	68.40	61.00
June	70.30	64.84	64.84	58.00	68.40	61.00
July	70.30	64.84	64.84	61.75	68.40	61.00
Aug.	70.30	64.84	64.84	61.75	68.40	61.00
Sept.	70.30	64.84	65.00	61.75	68.40	61.00
Oct.	70.30	64.84	65.00	61.75	68.40	61.00
Nov.	70.30	64.84	65.00	61.75	68.40	61.00
Dec.	70.30	64.84	65.00	61.75	68.40	61.00
Average	70.30	65.29	64.89	61.83	66.32	62.01

	1937	1938*	1946*	1947	1948	1949
Jan.	$61.00	$71.00	$83.00	$79.00	$88.00	$103.00
Feb.	61.00	71.00	66.00	79.00	91.50	103.00
Mar.	69.00	71.00	69.00	79.00	95.00	103.00
Apr.	71.00	71.00	69.00	79.00	95.00	103.00
May	71.00	71.00	69.00	79.00	94.00	103.00
June	71.00	71.00	69.00	79.00	93.00	103.00
July	71.00	63.00	69.00	79.00	95.00	103.00
Aug.	71.00	63.00	69.00	88.00	103.00	103.00
Sept.	71.00	63.00	69.00	88.00	103.00	103.00
Oct.	71.00	63.00	69.00	88.00	103.00	103.00
Nov.	71.00	63.00	69.00	88.00	103.00	103.00
Dec.	71.00	63.00	71.00	88.00	103.00	105.00
Average	69.17	67.00	68.42	82.75	97.21	103.17

* 1939-1945 = $63.00.

CURRENT QUOTATIONS

Current quotations on many of the commodities listed in this section are published in the regular weekly price pages. See index, p. 2, for page numbers of this week's price pages.

STEEL DISTRIBUTION BY CONSUMING INDUSTRIES

(In Thousands of Net Tons)
Source: American Iron & Steel Institute
Compilation and allocation: THE IRON AGE

	1939		Yearly Average 1941-44 Inc.		1945		1946		1947		1948*		1949†	
	Tons	Pct	Tons	Pct	Tons	Pct	Tons	Pct	Tons	Pct	Tons	Pct	Tons	Pct
Agriculture	1,421	3.6	1,565	2.4	2,426	4.3	2,100	4.3	2,422	3.84	2,743	4.16	2,415	4.19
Aircraft							32	.06	44	0.07	39	0.06	46	0.08
Automotive	5,908	15.1	5,557	8.8	5,521	9.7	7,379	15.1	10,292	16.32	11,330	17.17	11,508	20.14
Construction and Maintenance	6,100	15.6	8,379	13.3	8,353	14.7	8,130	16.7	10,039	15.92	10,157	15.40	8,994	15.74
Containers	2,978	7.6	4,216	6.7	4,333	7.6	4,749	9.7	5,596	8.87	5,844	8.85	4,954	8.67
Machinery, Tools	1,460	3.7	3,191	5.1	4,739	8.3	4,438	9.1	5,648	8.96	5,337	8.09	4,286	7.50
Oil, Gas, Water, Mining	1,842	4.7	2,221	3.5	2,670	4.7	2,480	5.1	3,833	6.08	5,080	7.70	5,108	8.94
Pressing, Forming, Stamping	1,842	4.7	2,809	4.5	3,800	6.7	3,127	6.4	3,770	5.98	4,256	6.45	3,017	5.28
Railroads	3,250	8.3	5,422	8.6	5,268	9.3	4,764	9.8	5,999	9.51	5,866	8.89	4,479	7.84
Shipbuilding	518	1.3	9,657	15.3	3,374	5.9	320	.64	373	.59	716	1.09	737	1.29
Exports	2,817	7.2	7,701	12.2	3,793	6.7	3,378	6.9	4,639	7.36	3,576	5.42	3,885	6.80
All Others	10,933	28.2	12,212	19.4	12,669	22.2	7,879	16.2	10,402	16.50	11,029	16.72	7,731	13.53
Total	39,067	100.0	63,490	99.8	56,946	100.0	48,776	100.0	63,057	100.00	65,973	100.00	57,170	100.00

* Revised. † Preliminary.

Canadian Steel Output

Ingot Capacity and Production, Net Tons

Source: Dominion Bureau of Statistics

	Steel Ingot Capacity	Steel Ingot Output	Percent of Capacity
1936	2,346,000	1,211,334	51.6
1937	2,346,000	1,496,575	63.7
1938	2,346,000	1,238,078	52.7
1939	2,346,000	1,266,056	53.9
1940	2,667,000	2,177,973	81.6
1941	2,964,000	2,578,063	86.9
1942	3,172,000	2,942,921	92.7
1943	3,257,500	2,848,235	87.4
1944	3,338,200	2,878,407	86.2
1945	3,358,600	2,767,206	81.7
1946	3,358,600	2,253,437	67.0
1947	3,245,000	2,854,532	87.9
1948	3,490,000	3,089,027	88.5
1949	3,588,000	3,109,700*	86.4*

* December estimated.

Canadian Steel Output

Ingots and Steel for Castings, Net Tons

Source: Dominion Bureau of Statistics, Department of Trade and Commerce

	Ingots	Castings	Total Steel Ingots and Castings
1923	940,475	33,213	973,688
1924	700,196	28,576	728,772
1925	836,016	21,100	856,116
1926	877,917	37,338	915,255
1927	972,079	44,475	1,016,554
1928	1,332,801	50,058	1,382,859
1929	1,466,688	78,562	1,545,250
1930	1,072,321	60,830	1,133,151
1931	744,605	41,501	786,106
1932	349,843	25,664	375,507
1933	441,346	17,830	459,176
1934	827,041	23,116	850,157
1935	1,016,814	35,123	1,051,937
1936	1,211,334	38,337	1,249,671
1937	1,496,575	74,652	1,571,137
1938	1,238,078	56,636	1,294,714
1939	1,266,056	60,997	1,327,053
1940	2,177,973	77,899	2,255,872
1941	2,578,063	123,250	2,701,313
1942	2,942,921	178,440	3,121,361
1943	2,848,235	148,743	2,996,978
1944	2,878,407	146,003	3,024,410
1945	2,747,206	134,117	2,881,323
1946	2,253,437	81,194	2,334,631
1947	2,854,532	90,634	2,945,166
1948	3,089,027	112,629	3,201,656
1949: Jan.	275,987	8,720	284,707
Feb.	249,009	10,262	259,271
Mar.	287,885	10,576	298,461
Apr.	260,319	9,649	269,968
May	283,808	9,371	293,179
June	261,476	8,979	270,455
July	232,499	6,331	238,830
Aug.	241,442	7,307	248,749
Sept.	232,882	7,866	240,748
Oct.	252,965	5,926	258,891
Total 10 mos.	2,578,272	84,987	2,663,259
Year 1949*	3,109,700	101,360	3,211,060

* Estimated.

Canadian Finished Steel

Production and Shipments, Net Tons

Source: Dominion Bureau of Statistics

	Production Carbon Steel Shapes	Shipments* Carbon Steel Shapes	Production Alloy Steel Shapes	Shipments* Alloy Steel Shapes
1946	2,300,088	2,296,986	75,442	73,180
1947	3,042,727	2,343,688	117,684	111,775
1948	3,421,689	2,475,577	153,595	147,323
1949				
Jan.	313,660	224,910	7,677	8,638
Feb.	290,851	207,888	10,065	8,994
Mar.	342,194	250,279	12,333	12,234
Apr.	322,452	239,772	9,236	8,393
May	306,852	224,893	7,781	7,028
June	313,907	218,151	7,494	7,317
July	253,898	177,514	5,984	5,144
Aug.	269,332	194,152	10,071	9,193
Total 8 mos.	2,413,146	1,737,539	70,641	66,941

* Excluding shipments to members of the industry for further conversion.

Tinplate at Pittsburgh

(per base box, 1.50 lb coating)

Source: THE IRON AGE

	1929	1930	1931	1932	1933	1934
Jan.	$5.35	$5.25	$5.00	$4.75	$4.25	$5.25
Feb.	5.35	5.25	5.00	4.75	4.25	5.25
March	5.35	5.25	5.00	4.75	4.25	5.25
April	5.35	5.25	5.00	4.75	4.25	5.25
May	5.35	5.25	5.00	4.75	4.25	5.25
June	5.35	5.25	5.00	4.75	4.25	5.25
July	5.35	5.25	5.00	4.75	4.25	5.25
Aug.	5.35	5.25	5.00	4.75	4.25	5.25
Sept.	5.35	5.25	5.00	4.75	4.65	5.25
Oct.	5.35	5.00	4.75	4.75	4.65	5.25
Nov.	5.35	5.00	4.75	4.65	4.65	5.25
Dec.	5.35	5.00	4.75	4.25	5.25	5.25
Average	5.35	5.19	4.94	4.69	4.43	5.25

	1936	1937	1938*	1947*	1948	1949
Jan.	$5.25	$4.85	$5.35	$5.75	$6.80	$7.75
Feb.	5.25	4.85	5.35	5.75	6.80	7.75
March	5.25	4.85	5.35	5.75	6.80	7.75
April	5.25	5.35	5.35	5.75	6.80	7.75
May	5.25	5.35	5.35	5.75	6.70	7.75
June	5.25	5.35	5.35	5.75	6.70	7.75
July	5.25	5.35	5.35	5.75	6.72	7.75
Aug.	5.25	5.35	5.35	5.75	6.80	7.75
Sept.	5.25	5.35	5.35	5.75	6.80	7.75
Oct.	5.25	5.35	5.35	5.75	6.80	7.75
Nov.	5.25	5.35	5.18	5.75	6.80	7.75
Dec.	5.25	5.35	5.00	5.75	6.80	7.75
Average	5.25	5.22	5.31	5.75	6.77	7.75

* 1939-1946 = $5.00.

ALLOY STEEL SHIPMENTS

Except Stainless Steel and Types 501 and 502, Net Tons

Source: American Iron & Steel Institute

Products	1949—First 9 Months			1948		1947		1946	
	Total Shipments	Exports	For Further Conversion or Resale	Shipments	Pct of Total	Shipments	Pct of Total	Shipments	Pct of Total
Ingots, blooms, billets, slabs, tube rounds, sheet bars, etc.	373,110	1,461	53,193	489,536	10.5	379,551	9.1	389,282	10.8
Structural shapes (heavy)	37,710	909	4	64,621	1.4	67,578	1.6	37,330	1.1
Steel piling	18	.....	.....						
Plates (sheared and universal)	138,376	3,130	1,224	225,450	4.8	166,106	4.0	160,092	4.8
Rails—standard (over 60 lbs)	108	4	3	76	0.0	157	0.0	10	0.0
Rails—all other	50	2	1	33	0.0	75	0.0	34	0.0
Bars—hot rolled	1,319,895	15,188	110,757	1,900,414	40.6	1,716,187	41.3	1,401,257	42.1
Bars—cold finished	153,151	837	3,258	217,833	4.7	196,200	4.7	168,426	5.0
Bars—tool steel	35,217	817	444	68,210	1.4	62,780	1.5	.....	....
Pipe and tubes—oil country goods	176,103	14,756	3,299						
Pipe and tubes—mechanical tubing	97,544	2,603	1,407	415,758	8.9	382,420	8.7	281,154	8.4
Pipe and tubes—pressure tubing	31,074	2,791	1,717						
Pipe and tubes—miscellaneous	3,818	7	1						
Wire rods	8,376	28	2,020	282	0.0	1,311	0.0	5,051	0.1
Wire drawn	22,550	20	466	34,485	0.7	28,436	0.7	24,257	0.7
Sheets—hot rolled	366,162	35,615	674	712,393	15.2	745,370	17.9	563,310	16.9
Sheets—cold rolled	189,857	6,040	29	349,756	7.5	251,474	6.1	188,806	5.7
Strip—hot rolled	51,684	145	3,798	90,364	1.9	67,972	1.7	38,973	1.2
Strip—cold rolled	52,904	2,615	17	103,405	2.2	103,719	2.5	59,848	1.8
Wheels (car, rolled steel)	82	.....	.....	23	0.0	53	0.0	27	0.0
Axles	487	.....	.....	942	0.0	558	0.0	608	0.0
All other	2,449	1	.....	7,685	0.2	6,061	0.2	45,112	1.4
Total	3,060,725	86,969	182,312	4,681,066	100.0	4,156,008	100.0	3,331,545	100.0

Metal Industry Facts

Steel production
Steel prices and markets

BASIC-END OPENHEARTH FURNACES

Tabulation of Installations to Date

Source: General Refractories Co.

	Furnace No.	Date Installed
Steel Co. of Canada, Hamilton, Ont.	7*	Jan. 1943
Steel Co. of Canada, Hamilton, Ont.	18**	April 1944
Armco Steel Corp., Middletown, Ohio.	7	Oct. 1944
Ford Motor Co., Dearborn, Mich.	8	Feb. 1945
Armco Steel Corp., Middletown, Ohio.	5	Dec. 1945
Armco Steel Corp., Middletown, Ohio.	6	April 1946
Steel Co. of Canada, Hamilton, Ont.	12	Aug. 1946
Armco Steel Corp., Middletown, Ohio.	8	Sept. 1946
Carnegie-Illinois Steel Corp., South Works, Chicago	10**	June 1947
Armco Steel Corp., Middletown, Ohio.	2	July 1947
Carnegie-Illinois Steel Corp., Homestead Works, Munhall, Pa.	53	July 1947
Armco Steel Corp., Ashland, Ky.	8	Aug. 1947
Laclede Steel Co., Alton, Ill.	2	Aug. 1947
Youngstown Sheet & Tube, Briar Hill Works, Youngstown	4	Aug. 1947
Lukens Steel Co., Coatesville, Pa.	24	Oct. 1947
Sheffield Steel Corp., Houston	7	Oct. 1947
Carnegie-Illinois Steel Corp., South Works, Chicago	11	Feb. 1948
Sheffield Steel Corp., Houston	6	Mar. 1948
Granite City Steel Co., Granite City, Ill.	23	Mar. 1948
Armco Steel Corp., Middletown, Ohio.	3	April 1948
Bethlehem Steel Corp., Johnstown, Pa.	61	May 1948
Carnegie-Illinois Steel Corp., Gary	58	May 1948
Jones & Laughlin Steel Corp., Otis Works, Cleveland	9	June 1948
Sheffield Steel Corp., Houston	3	June 1948
Sheffield Steel Corp., Houston	5	June 1948
Inland Steel Co., Indiana Harbor, Ind.	32	Aug. 1948
Sheffield Steel Corp., Houston	2	Aug. 1948
Sheffield Steel Corp., Houston	1	Sept. 1948
Armco Steel Corp., Middletown, Ohio.	4	Dec. 1948
Sheffield Steel Corp., Houston	4	Dec. 1948
Laclede Steel Co., Alton, Ill.	3	Jan. 1949
A. S. & W. Co., Duluth	9	Feb. 1949
A. S. & W. Co., Duluth	8	Mar. 1949
Republic Steel Corp., Buffalo	6	May 1949
Armco Steel Corp., Ashland, Ky.	7	May 1949
Carnegie-Illinois Steel Corp., Edgar Thomson, Bessemer, Pa.	15	July 1949
Armco Steel Corp., Ashland, Ky.	6	Aug. 1949
Weirton Steel Co., Weirton, W. Va.	1	Sept. 1949
Wheeling Steel Co., Steubenville, Ohio	6	Sept. 1949
Wisconsin Steel Co., South Chicago	11	Sept. 1949
Central Iron & Steel Co., Harrisburg, Pa.	6	Dec. 1949
Granite City Steel Co., Granite City, Ill.	24	Dec. 1949
Laclede Steel Co., Alton, Ill.	1	Scheduled
Laclede Steel Co., Alton, Ill.	4	for
Sheffield Steel Corp., Houston	8	for
Sheffield Steel Corp., Kansas City	...	1950
Steel Co. of Canada, Hamilton, Ont.	...	Scheduled
Armco Steel Corp., Middletown, Ohio.	...	for
Armco Steel Corp., Middletown, Ohio.	...	1950-1951

* One end only, later dismantled. ** All basic furnace.

IRON AND STEEL EXPORTS

(Net tons)

Source: U. S. Dept. of Commerce

	1949								
	Nine Months	Monthly Average	1948	1947	1946	1940	1939	1938	1937
Semi-Finished and Finished Products:									
Ingots, blooms, billets, slabs, sheet bars	240,621	26,735	219,340	491,214	452,533	2,822,428	241,671	187,758	379,389
Wire rods	49,254	5,473	38,142	71,237	62,857	320,981	35,224	24,957	67,209
Skelp	92,954	10,328	57,920	67,403	56,569	167,309	91,461	66,849	85,655
Iron bars	1,320	147	3,658	34,752	25,575	16,190	970	1,467	3,486
Concrete reinforcement bars	96,950	10,772	130,298	248,373	194,652	155,172	52,926	29,237	20,048
Steel bars, cold finished	34,019	3,780	46,496	106,270	88,152	74,602	12,747	7,225	
Other steel bars (excluding alloy)	243,280	27,031	309,475	535,370	339,905	524,211	150,247	121,823	148,419
Alloy steel bars	18,504	2,056	53,006	208,113	50,978	49,370	16,707	9,178	7,415
Welding rods, electric	13,581	1,509	15,834	14,842	9,470	4,800	1,795	1,324	
Boiler plate	380,353	42,261	28,877	32,558	61,706	12,510	10,391	7,564	11,704
Other plates, not fab.			318,820	530,309	470,283	631,239	274,176	240,077	421,533
Plates, fab., punched or shaped	27,669	3,074	23,550	37,230	34,857	30,818	7,505	2,629	26,247
Iron sheets, black	18,563	2,063	17,773	30,215	31,179	29,622	11,702	8,474	12,082
Steel sheets, black	448,346	49,816	416,481	568,964	482,785	533,882	301,308	229,912	320,891
Galvanized sheets	68,828	7,648	62,782	74,552	77,747	184,370	124,284	85,161	90,741
Strip steel, cold rolled	48,881	5,431	59,483	89,617	64,626	72,804	29,392	26,575	40,682
Strip steel, hot rolled	69,671	7,741	69,094	107,147	84,376	150,558	70,235	41,486	83,900
Tin plate and tagger's tin	459,379	67,193	604,739	609,423	377,948	422,484	342,188	176,044	398,192
Terne plate (incl. long ternes)	8,601	956	9,046	12,851	20,503	6,846	6,149	4,921	5,771
Structural shapes, plain	268,932	29,880	292,176	463,651	319,102	456,015	129,321	93,734	151,991
Structural shapes, fab.	116,486	12,943	161,174	246,130	99,477	80,960	41,612	42,624	43,824
Frames and sashes	2,346	261	3,164	3,546	1,714	2,265	1,329	1,584	1,922
Sheet piling	16,470	1,830	34,523	34,163	25,641	13,506	8,615	3,913	8,374
Rails, 60 lbs. per yard and over	165,575	18,397	265,820	353,444	286,780	227,645	39,878	51,429	123,916
Rails, less than 60 lbs. per yard	6,943	771	9,718	59,286	38,455	41,487	7,364	4,917	11,341
Rails, relaying	19,248	2,139	32,837	87,855	60,368	19,888	18,941	36,301	30,707
Splice bars and tie plates	17,758	1,973	49,356	119,411	53,072	11,595	9,872	8,224	16,332
Frogs and switches	5,150	572	5,467	7,190	6,763	3,268	2,250	1,843	2,862
Railroad spikes	2,960	329	9,268	23,459	12,045	5,618	3,935	2,918	3,442
Railroad bolts, nuts, and washers	1,601	178	7,666	7,759	8,470	3,724	2,184	1,384	1,246
Car wheels, tires and axles	49,148	5,461	38,714	88,801	68,371	21,483	31,225	23,450	31,110
Seamless black pipe	21,734	2,415	21,692	18,717	14,870	34,027	11,445	8,354	13,980
Seamless casing and oil line pipe	228,852	25,428	227,524	243,038	123,757	165,584	87,501	56,092	84,031
Seamless boiler tubes	35,827	3,981	36,700	62,636	41,767	27,800	15,940	8,764	18,788
Welded black pipe	85,260	9,473	61,560	90,995	85,278	57,968	26,832	15,433	28,978
Welded galvanized pipe	71,709	7,968	41,760	70,219	61,062	71,827	37,405	19,492	23,025
Welded casing and oil line pipe	184,940	20,549	144,390	90,462	56,024	36,589	10,952	15,255	9,467
Welded boiler tubes	4,369	485	1,755	7,315	2,798	3,317	1,050	335	765
Other pipe and fittings	55,806	6,200	68,938	101,850	72,984	19,263	8,483	1,058	1,098
Plain wire	65,621	7,291	76,828	83,346	52,575	98,112	36,103	26,970	37,118
Galvanized wire	50,381	5,598	50,314	101,026	65,221	74,011	31,651	28,887	28,713
Barbed wire	65,324	7,258	39,789	78,862	48,803	49,510	59,721	38,015	37,894
Woven wire fencing	14,432	1,604	11,620	12,371	9,739	5,302	3,774	2,480	3,840
Woven wire screen cloth	3,524	392	5,737	5,985	3,523	3,751	2,154	1,486	1,779
Wire rope and strand	10,720	1,191	13,643	30,829	33,710	14,963	6,785	4,897	5,753
Wire nails	24,034	2,670	19,862	25,755	19,102	54,478	28,892	23,207	19,497
Other wire and manufactures	17,763	1,974	41,517	52,600	26,098	18,699	11,532	7,013	9,803
Horseshoe nails	.....	.....	428	1,025	2,080	1,650	1,043	995	1,092
Tacks	1,341	149	3,537	1,960	1,787	982	434	294	456
Other nails, incl. staples	8,776*	975*	10,949	13,010	7,782	6,150	5,756	4,576	3,473
Bolts, nuts, rivets and washers, except railroad	21,316	2,368	54,311	48,234	31,622	37,387	9,919	9,024	12,506
Forgings	20,755	2,306	27,063	35,818	19,358	35,952	18,595	10,183	11,332
Horseshoes	268	30	582	897	1,859	400	251	115	201
Total	4,293,137	477,015	4,354,996	6,543,085	4,747,397	7,914,352	2,493,822	1,829,907	4,593,735
Year 1949 (estimated)	5,250,000								

* Includes horseshoe nails.

NEW STEELMAKING CAPACITY INSTALLED IN 1949

Source: THE IRON AGE

OPENHEARTH FURNACES Company	Number of Furnaces	Rated Capacity Per Heat (N.T.)	Annual Capacity	Location	Furnace Builder	Operation Started	Remarks
American Steel & Wire Co.	2	160	240,000	Duluth	.....	.....	.....
Ford Motor Company	1	185	109,300*	Dearborn, Mich.	Loftus Engineering Co.	January	Replaced 1 110-ton unit. Net gain 40,000 tons.
Empire Steel Co.	1	140	88,000*	Mansfield, Ohio	Loftus Engineering Co.	March	Replaced 100-ton. Net gain 28,000 tons.
Weirton Steel Co.	1	550	365,000*	Weirton, W. Va.	.....	September	Replaced 200-ton unit. Net gain 230,000 tons.
Great Lakes Steel Corp.	1	500	330,000	Ecorse, Mich.	.....	November	.....
Granite City Steel Co.	1	185	115,000	Granite City, Ill.	Rust Furnace Co.	December	.....
Republic Steel Corp.	1	200	120,000	Cleveland	Hunkin-Conkey Construction Co. & McDowell Co., Inc.	December	.....
Total openhearth furnaces (net increase)			1,103,000				
ELECTRIC FURNACES							
McLouth Steel Corp.	2 2	60 60	360,000*	Trenton, Mich.	Move and rebuild Am. Bridge Co.	March November	1 35-ton rebuilt, 1 60-ton. Both moved from Indiana Harbor, Ind. Total net capacity gain 180,000
Allegheny Ludlum Steel Corp.	2 1	70 60	325,000	Brackenridge, Pa.	Swindell Dresser	July December	Second 60-ton furnace partially installed not expected to come into production until 1950.
Rotary Electric Steel Co.	1	70	90,000	Detroit, Mich.	Pgh. Lectromelt	March	.....
Oregon Steel Mills	1	12	36,000	Portland, Ore.	Pgh. Lectromelt	January	.....
Southwest Steel Rolling Mills	1	9	30,000	Los Angeles	Pgh. Lectromelt	January	.....
Lebanon Steel Foundry	2	5	32,000	Lebanon, Pa.	Swindell Dresser	March	.....
Total electric furnaces (net increase)			693,000				
BESSEMER CONVERTERS							
National Tube Co.	3	25	918,000*	Lorain, Ohio	Penna. Engineering	March	Replace 2 13.4-ton units. Net capacity increase 360,000 tons.
Jones & Laughlin Steel Corp.	1	25	306,000	Pittsburgh, Pa.	Penna. Engineering	November	.....
Total Bessemer Converters (net increase)			666,000				

* Not a net gain; see Remarks.

ADDRESSES AND OFFICERS OF TECHNICAL SOCIETIES AND ASSOCIATIONS

American Institute of Steel Construction
101 Park Ave., New York 17
Pres.: T. R. Mullen
Exec. Vice-Pres.: L. Abbett Post

American Iron & Steel Institute
350 5th Ave., New York 1
Pres.: Walter S. Tower

American Steel Warehouse Assn.
442 Terminal Tower, Cleveland 13
Pres. and Secy.: Walter S. Doxsey

Electric Furnace Steel Committee, Branch of Iron & Steel Div., AIME
29 W. 39th St., New York 18
Chairman: Norman I. Stotz
Secy.: E. O. Kirkendall

Formed Steel Tube Institute
Keith Bldg., Cleveland 15
Vice-Pres.: Norris M. Brown

Iron & Steel Div., AIME
29 W. 39th St., New York 18
Chairman: C. D. King
Secy.: E. O. Kirkendall

Natl. Assn. of Misc. & Ornamental Iron Mfrs.
209 Cedar Ave., Takoma Park, Washington 12
Secy.-Treas.: O. J. Condon

National Openhearth Committee, Branch of Iron & Steel Div., AIME
29 W. 39th St., New York 18
Chairman: E. G. Hill
Secy.: E. O. Kirkendall

Rail Steel Bar Assn.
38 S. Dearborn St., Chicago 3
Pres.: O. W. Irwin
Secy.: W. H. Jacobs

Steel Plate Fabricators Assn.
37 W. Van Buren St., Chicago 1
Exec. Dir.: J. Dwight Evans

Steel Products Warehouse Assn.
Union Commerce Bldg., Cleveland 14
Pres.: Clayton Grandy
Asst. Secy.: Daniel J. Ryan

Wire Reinforcement Institute
National Press Bldg., Washington 4
Managing Dir.: T. J. Kauer

Wire Rope Institute
1044 Shoreham Bldg., Washington 5
Counsel: Geo. P. Lamb

STEEL CAPACITY, PRODUCTION AND OPERATING RATES

With Percentages of Openhearth, Bessemer and Electric Steel to Total Steel Production

(Ingots and Steel for Castings, Net Tons)

Source: American Iron & Steel Institute

		Openhearth		Bessemer		Electric*		Total	
	Total Capacity	Production	Percent of Total Output	Production	Percent of Total Output	Production	Percent of Total Output	Production	Percent of Capacity
1949†.	96,120,130	69,984,405	90.5	3,981,485	5.2	3,587,210	4.7	77,560,000	80.8
1948	94,243,460	79,340,157	89.5	4,243,172	4.8	5,057,141	5.7	88,640,470	94.1
1947	91,241,250	76,873,793	90.5	4,232,543	5.0	3,787,785	4.5	84,894,071	93.0
1946	91,890,560	60,711,963	91.2	3,327,737	5.0	2,563,024	3.8	66,602,724	72.5
1945	95,505,280	71,939,602	90.3	4,305,318	5.4	3,456,728	4.3	79,701,648	83.5
1944	93,854,420	80,363,953	89.7	5,039,923	5.6	4,237,724	4.7	89,641,600	95.5
1943	90,589,190	78,621,804	88.5	5,625,492	6.3	4,589,216	5.2	88,836,512	98.1
1942	88,886,550	76,501,957	88.9	5,553,424	6.5	3,976,550	4.6	86,031,931	96.8
1941	85,158,150	74,389,619	89.8	5,578,071	6.7	2,871,569	3.5	82,839,259	97.3
1940	81,619,496	61,573,083	91.9	3,708,573	5.6	1,701,030	2.5	66,982,686	82.1
1939	81,826,958	48,409,800	91.7	3,358,916	6.4	1,029,998	1.9	52,798,714	64.5
1938	80,158,636	29,080,016	91.6	2,108,340	6.6	565,634	1.8	31,751,990	39.6
1937	78,148,374	51,824,979	91.5	3,863,918	6.8	948,048	1.7	56,636,945	72.5
1936	78,164,300	48,780,463	91.2	3,873,472	7.2	866,064	1.6	53,499,999	68.4
1935	78,451,930	34,401,280	90.1	3,175,235	8.3	607,190	1.6	38,183,705	48.7
1934	78,128,416	26,354,838	90.3	2,421,840	8.3	405,246	1.4	29,181,924	37.4
1933	78,614,403	22,827,473	87.7	2,720,248	10.5	472,510	1.8	26,020,229	33.1
1932	78,780,913	13,336,210	87.0	1,715,925	11.2	270,766	1.8	15,322,901	19.5
1931	77,257,803	25,210,714	86.8	3,386,259	11.6	461,988	1.8	29,058,961	37.6
1930	72,985,406	39,255,073	88.1	5,639,714	12.4	688,634	1.8	45,583,421	62.5
1929	71,438,516	54,155,235	85.7	7,977,210	12.6	1,073,045	1.7	63,205,490	88.5
1928	68,840,912	49,407,631	85.6	7,414,618	12.8	907,232	1.6	57,729,481	83.9
1927	67,236,117	42,636,535	84.7	6,934,734	13.8	756,138	1.5	50,327,407	74.9
1926	67,750,035	45,575,016	84.2	7,766,716	14.4	747,282	1.4	54,089,014	83.5
1925	68,473,222	42,598,627	83.8	7,530,837	14.8	711,283	1.4	50,840,747	74.2

* Includes very small tonnages of crucible steel. † Preliminary

Metal Industry Facts

Steel production
Steel prices and markets

STAINLESS STEEL

Ingot Production by Type Numbers, Net Tons

Source: American Iron and Steel Institute

Type Number	First 6 mos. 1949	1948	1947
301	16,293	61,585	24,485
302	42,486	148,426	124,542
302B	379	1,623	629
303	4,493	14,633	9,171
304	356,45	100,986	118,387
308	1,187	2,947	2,564
309	1,727	4,902	4,137
310	2,186	5,663	3,849
316	11,266	28,6222	29,630
321	3,642	7,528	6,849
347	16,091	33,346	22,966
All Other	7,071	9,266	8,748
Total	143,466	416,367	353,037
403	3,471	6,423	5,921
405	1,253	4,126	2,259
406	842	2,580	1,842
410	9,260	25,614	19,568
414	1,296	5,562	2,090
416	5,470	16,264	9,905
420	2,325	4,852	4,818
430	89,781	122,437	105,783
430F	518	1,526	1,098
431	528	1,120	1,476
440A	702	1,433	800
440B	424	218	125
440C	505	1,220	1,223
442	142	316	439
443	4	33	13
446	1,034	2,573	1,753
All Other	1,162	4,692	7,783
Total	88,857	200,991	166,896
Total all types	323,123	617,378	519,933
Ratio stainless to total ingot output	1:142	1:144	1:163

Type Number	1946	1945	1944
301	46,947	34,005	20,238
302	169,224	113,695	103,406
302B	379	595	561
303	14,834	31,368	26,519
304	113,786	77,912	47,477
308	2,806	5,722	9,944
309	3,805	3,989	3,087
310	2,757	10,250	10,983
316	24,472	18,801	22,336
321	3,555	37,338	61,641
347	16,113	32,364	26,988
All Other	6,553	14,620	18,785
Total	405,231	380,659	351,967
403	4,433	3,985	4,393
405	2,027	1,579	2,454
406	892	1,804	2,143
410	18,075	19,920	22,212
414	2,531	2,564	1,960
416	15,889	28,630	29,630
420	5,066	5,015	4,816
430	81,318	82,935	41,217
430F	1,493	902	819
431	899	1,020	930
440A	1,775	1,147	1,452
440B	281	599	311
440C	1,596	1,872	1,930
442	164	180	333
443	22	338	176
446	2,135	3,173	3,341
All Other	6,270	8,582	7,414
Total	144,866	162,245	125,531
Total all types	550,097	542,904	477,498
Ratio stainless to total ingot output	1:121	1:147	1:188

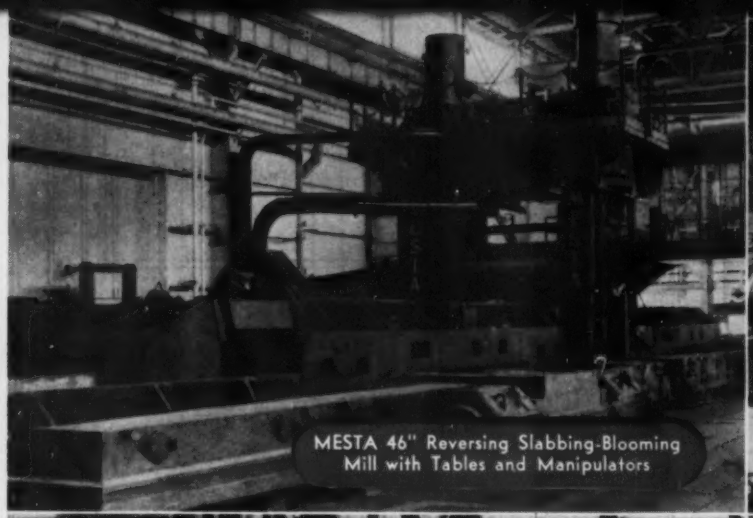
STEEL ROLLING MILL INSTALLATIONS

Built or Modernized During 1948-1949

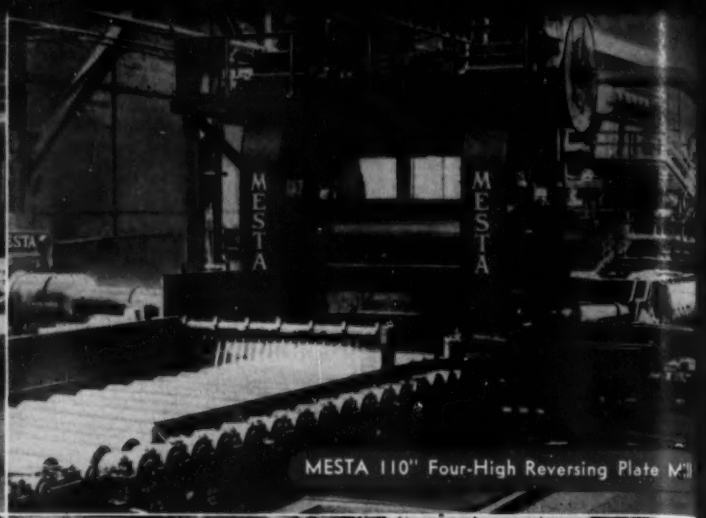
As reported to THE IRON AGE

Name of Company	Location of Works	Name of Builder	Date Delivered	New or Modernized	Type
Allegheny Ludlum Steel	Watervliet, N. Y.	Birdsboro Steel Foundry & Mach. Co.	1949	New	22-in. rev. blooming
Rotary Elec. Steel Co.	Detroit, Mich.	Birdsboro Steel, Foundry & Mach. Co.	1949	New	38-in. rev. blooming
Carnegie-Illinois	S. Chicago, Ill.	Birdsboro Steel Foundry & Mach. Co.	1949	.....	96-in. plate
Sheffield Steel Corp.	Houston, Texas	Morgan Construction Co.	1948	New	Merchant
Crucible Steel Co.	Midland, Pa.	Lewis Foundry & Machine Co	1948	New	Six 10-in. x 16-in. 2-H Mills and two 12-in. x 16-in. 2-H Mills for finishing end of merchant mill for rolling bars, rods and miscellaneous shapes
Superior Steel Corp.	Carnegie, Pa.	Lewis Foundry & Machine Co.	1949	New	23-in. 3-H Universal Hot Mill
Continental Steel Corp.	Kokomo, Ind.	Lewis Foundry & Machine Co.	1948	New	32-in. x 20-in. x 62-in. 3-H Jump Mill
Reynolds Metals Co.	Listerhill, Ala.	Lewis Foundry & Machine Co.	1949	New	Five 9-in. x 21-in. x 44-in. 4-H aluminum Foil Mills
Portsmouth Steel Co.	Portsmouth, Ohio	Lewis Foundry & Machine Co.	1948	New	32-in. and 20-in x 62-in. 3-H Balanced Roughing Mill
Newport Rolling Mills	Newport, Ky.	A. B. Montgomery	1949	New	4-H rev. hot strip
A. M. Byers	Ambridge, Pa.	Mackintosh-Hemphill	1949	New	29-in. x 40-in. 2-H rev. hot strip
Thompson Wire Co.	Chicago, Ill.	Mackintosh-Hemphill	1948	New	18-in. max. width Y-type rev. cold strip
Steel Co. of Canada	Hamilton, Ont.	Mesta	....	New	21-in. x 53-in. x 56-in. 4-H 5-Std. tandem cold
McLouth Steel Co.	Trenton, Mich.	Mesta	....	New	25-in. x 49-in. x 42-in. 4-H rev. hot strip
Great Lakes Steel	Ecorse, Mich.	Mesta	1948	New	Two 20-in. x 53-in. x 93-in. 4-H skin pass
Inland Steel Co.	Chicago, Ill.	Mesta	1948	New	30-in. x 62-in. 2-H skin pass
Jones & Laughlin	Aliquippa, Pa.	Mesta	1948	....	44-in. 2-H rev. blooming
Republic Steel Co.	Cleveland, Ohio	Mesta	1949	New	38-in. 2-H blooming mill stand
Geneva Steel Co.	Geneva, Utah	Mesta	1948	Mod.	Parts to widen fin. stands 5 and 6 of 132-in. hot strip
Jones & Laughlin	Pittsburgh, Pa.	Mesta	1949	Mod.	Converted 18-in. x 53-in. 42-in. 4-H cold rev. mill into 20-in. x 53-in. x 93-in. 4-H skin pass
Inland Steel Co.	Chicago, Ill.	Mesta	1949	Mod.	54-in. 4-Stand tandem cold
Inland Steel Co.	Chicago, Ill.	Mesta	1949	Mod.	Two 18-in. x 39-in. x 42-in. single stand skin pass
Inland Steel Co.	Chicago, Ill.	Mesta	1948	Mod.	5-stand 18-in. x 49-in. x 42-in. tandem cold
Inland Steel Co.	Chicago, Ill.	Mesta	1948	Mod.	Two 20-in. x 44-in. x 72-in. 4-H skin pass
Great Lakes Steel Co.	Ecorse, Mich.	Mesta	1948	Mod.	No. 2 hot strip
Detroit Steel Co.	New Haven, Conn.	United	Dec. 1948	New	4-H rev. cold
Signode Steel Strapping	Sparrows Point, Md.	United	Dec. 1948	New	4-H rev. cold strip
Wallingford Steel Co.	Wallingford, Conn.	United	Nov. 1949	New	4-H 2-Std. tandem
Carnegie-Illinois Steel	Gary Sheet & Tin	United	July 1948	Mod.	80-in. Hot strip
Carnegie-Illinois Steel	Gary Sheet & Tin	United	Oct. 1948	Mod.	3-Std. Tandem
Sheffield Steel	Houston, Texas	United	Sept. 1949	New	2-H 28-in. x 75-in. 2-Std. Billet
Argonne National Lab.	Chicago, Ill.	United	Nov. 1949	Mod.	8¼-in. x 16-in. 2-H hot and cold
Argonne National Lab.	Chicago, Ill.	United	Nov. 1949	New	15-in x 24-in.. 2-H
Republic Steel	Corrigan McKinney	United	Nov. 1949	Mod.	96-in. skin pass
Republic Steel	Warren, Ohio	United	Aug. 1949	New	Roughing stand
Sharon Steel	Sharon, Pa.	United	Dec. 1948	New	14-in. Cont. hot strip
Sharon Steel	Farrell, Pa.	United	May, 1948	New	28-in. 5-Std. rough train, cont. hot strip
Jones & Laughlin	Otis Wks., Cleve., O.	United	Dec. 1949	Mod.	72-in. hot strip
Alan Wood Steel	Ivy Rock, Pa.	United	Oct. 1949	New	30-in. hot strip
Westinghouse Elec.	Dodson, Mo.	United	Nov. 1949	New	12-in. x 12-in. 2-H cold
Westinghouse Elec	Essington, Pa.	United	Nov. 1949	New	3-H 2-Std. marchant
Stanley Wks.	New Britain, Conn.	United	Dec. 1949	New	12-in. & 33-in x 29-in. 4-H rev. cold
Ford Motor Co.	Dearborn, Mich.	United	April 1948	Mod.	4-H skin pass
Crucible Steel	Midland, Pa.	United	Nov. 1948	New	96-in. 4-H rev. hot

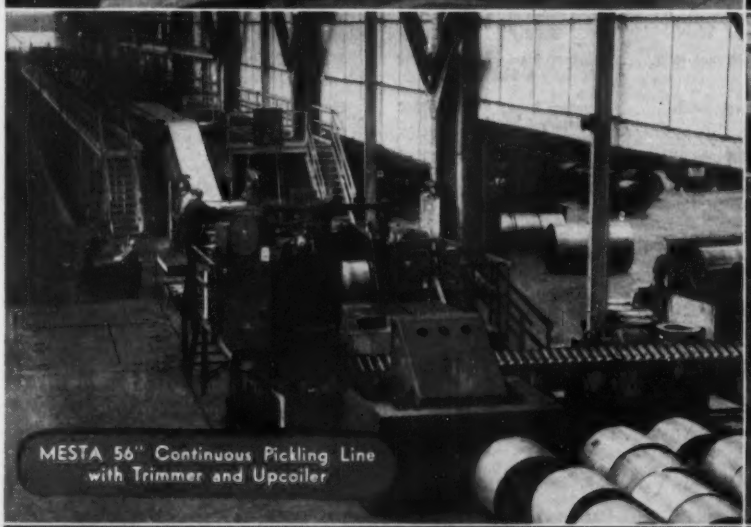
Continued on Page 166



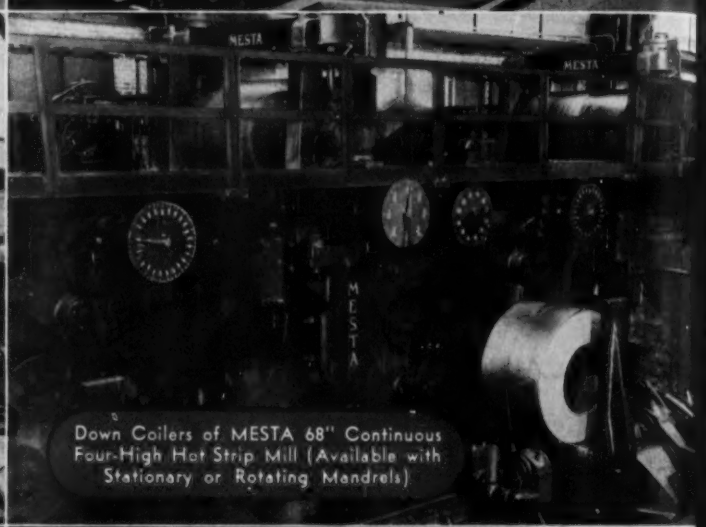
MESTA 46" Reversing Slabbing-Blooming Mill with Tables and Manipulators



MESTA 110" Four-High Reversing Plate Mill



MESTA 56" Continuous Pickling Line with Trimmer and Upcoiler



Down Coilers of MESTA 68" Continuous Four-High Hot Strip Mill (Available with Stationary or Rotating Mandrels)

Battery of Five MESTA 42" High-Speed Electrolytic Cleaning Lines

Machining Forged Steel Pressure Vessel for a MESTA 18,000 Ton Hydraulic Press on a MESTA Heavy Duty Lathe

MESTA 59"x130" Heat Treated Special Alloy Steel Backing-up Roll Being Finished in a MESTA Heavy Duty Grinder

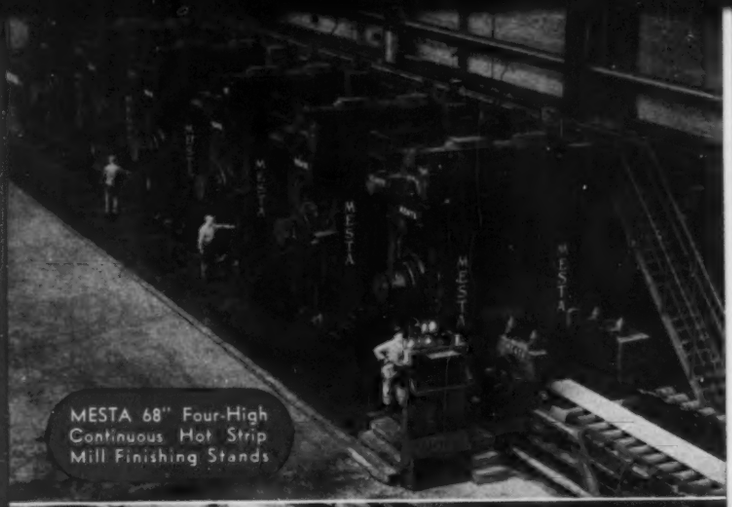
MESTA 60" Heavy Duty Traveling Wheel Type Roll Grinder

Designed and Built By

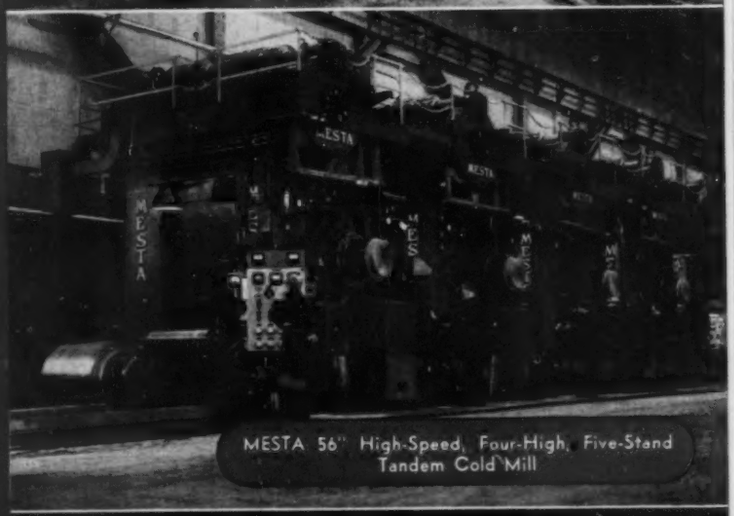
MESTA

MACHINE COMPANY

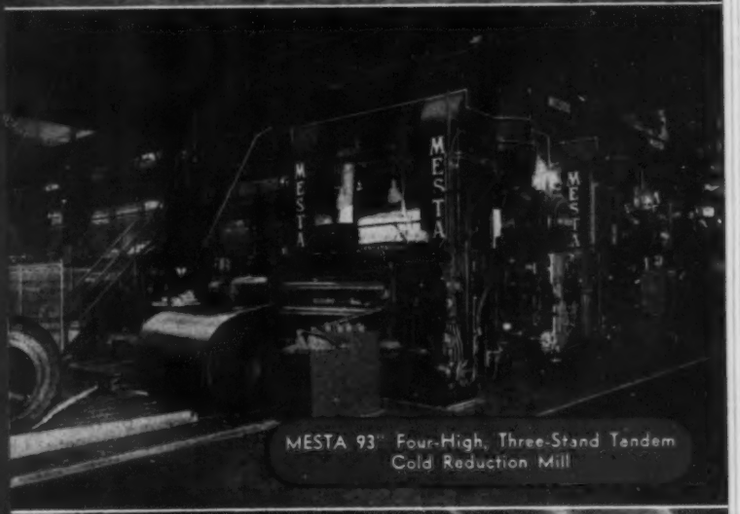
PITTSBURGH, PENNA.



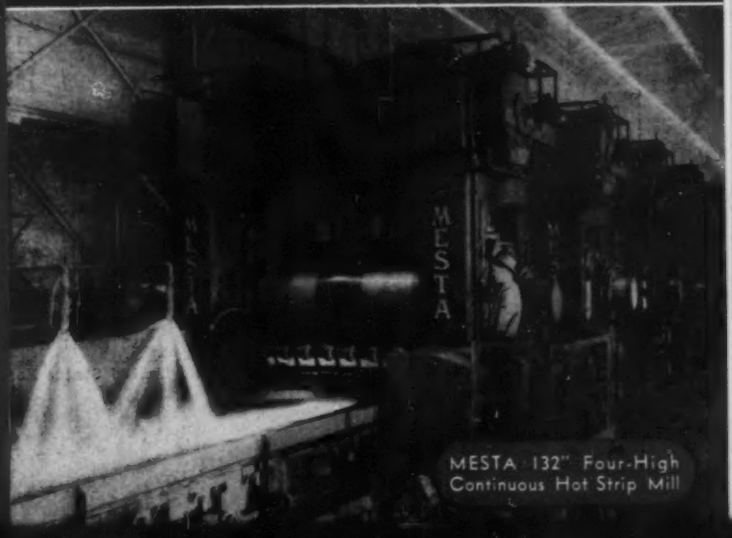
MESTA 68" Four-High Continuous Hot Strip Mill Finishing Stands



MESTA 56" High-Speed, Four-High, Five-Stand Tandem Cold Mill



MESTA 93" Four-High, Three-Stand Tandem Cold Reduction Mill



MESTA 132" Four-High Continuous Hot Strip Mill

Continued

SHIPMENTS AND PRODUCTION FOR SALE OF STEEL PRODUCTS

(Reported by companies comprising more than 95 pct of total production of finished rolled products as reported to American Iron & Steel Institute)

Steel Products	1949—9 Months		1948		1947		1946		1945		1940		1939	
	Shipments (N.T.)	Pct of Total	Shipments (N.T.)	Pct of Total	Shipments (N.T.)	Pct of Total	Shipments (N.T.)	Pct of Total	Shipments (N.T.)	Pct of Total	Production for Sale (N.T.)	Pct of Total	Production for Sale (N.T.)	Pct of Total
Ingots, blooms, billets, tube rounds, sheet and tin bars, etc.	1,872,452	3.9	3,150,754	4.8	2,966,748	4.7	1,949,624	4.0	4,724,688	8.3	4,532,745	9.9	1,305,886	3.7
Structural shapes (heavy)	3,090,101	6.4	4,255,355	6.5	4,436,129	7.0	3,474,284	7.1	3,545,673	6.3	3,149,036	6.9	2,544,515	7.3
Steel piling	288,450	0.6	299,537	0.5	324,224	0.5	205,313	0.4	217,336	0.4	215,234	0.5	171,428	0.5
Plates (sheared and universal)	4,877,302	10.1	7,000,199	10.6	6,345,216	10.1	4,152,181	8.5	6,508,130	11.5	4,171,158	9.1	2,793,796	8.0
Skelp	95,541	0.2	75,252	0.1	160,989	0.3	227,033	0.5	378,985	0.7	527,574	1.1	226,508	0.6
Rails, Standard (over 60 lbs.)	1,605,955	3.3	1,976,520	3.0	2,207,146	3.5	1,790,311	3.7	2,224,148	3.9	1,487,113	3.2	1,161,988	3.3
All other	103,183	0.2	214,880	0.3	211,900	0.3	144,999	0.3	170,055	0.3	162,622	0.4	125,109	0.4
Joint bars and tie plates	435,350	0.9	626,573	1.0	678,702	1.1	624,299	1.3	779,057	1.4	481,271	1.0	466,247	1.3
Track spikes	85,502	0.2	145,830	0.2	163,746	0.3	146,194	0.3	165,038	0.3	107,197	0.2	119,719	0.3
Hot Rolled Bars, Carbon	5,376,707	11.1	6,196,444	9.4	6,242,416	9.9	5,006,859	10.3	5,590,154	9.9	4,465,549	9.7	3,292,876	9.4
Reinf., New billet	1,276,797	2.6	1,329,945	2.0	1,277,075	2.0	1,048,483	2.1	750,442	1.3	1,299,455	2.8	1,038,949	3.0
Rerolled			212,021	0.3	175,833	0.3	141,346	0.3	85,006	0.1	142,480	0.3	175,253	0.5
Alloy	†	....	1,927,309	2.9	1,741,432	2.8	1,390,278	2.8	1,741,075	3.1	962,450	2.1	702,322	2.0
Total	6,653,504	13.7	9,665,719	14.6	9,436,756	15.0	7,586,966	15.5	8,166,677	14.4	6,869,934	14.9	5,209,400	14.9
Cold Finished Bars, Carbon	.....	....	1,349,719	2.0	1,423,701	2.3	1,316,579	2.7	1,614,136	2.8	724,504	1.6	592,514	1.7
Alloy	.....	....	244,248	0.4	218,802	0.3	196,237	0.4	326,173	0.6	99,589	0.2	66,384	0.2
Total	1,029,559	2.1	1,593,967	2.4	1,645,503	2.6	1,512,816	3.1	1,940,309	3.4	824,093	1.8	658,898	1.9
Tool steel bars	45,112	0.1	88,376	0.1	87,279	0.1	96,020	0.2	122,149	0.2	74,176	0.2	45,117	0.1
Pipes and Tubes, Buttweld			2,045,361	3.1	1,706,415	2.7	1,276,289	2.6	1,517,927	2.7	1,157,144	2.5	952,974	2.7
Lapweld			339,633	0.5	389,762	0.6	305,516	0.6	503,951	0.9	360,188	0.8	358,919	1.0
Electricweld	5,233,741	10.8	1,572,139	2.4	1,122,350	1.8	674,459	1.4	857,478	1.5	288,424	0.6	267,312	0.8
Seamless			2,924,416	4.4	2,082,698	3.3	1,871,540	3.8	2,235,294	4.0	1,759,567	3.8	1,686,665	4.8
Conduit			.....	....	155,335	0.2	98,521	0.2	88,112	0.1	82,042	0.2	78,850	0.2
Mech., Press. Tubes	525,398	1.1	.....	....	661,336	1.1	429,180	0.9	869,130	1.2	313,877	0.7	160,862	0.5
Wire rods	482,142	1.0	610,348	0.9	667,282	1.1	679,998	1.4	862,393	1.5	1,041,557	2.3	550,040	1.6
Wire, Drawn	1,700,174	3.5	2,673,276	4.1	2,590,963	4.1	1,933,124	4.0	1,942,168	3.4	1,540,357	3.4	1,354,992	3.9
Nails and staples	808,907	1.3	859,540	1.3	798,436	1.3	638,632	1.3	602,558	1.1	641,453	1.4	678,786	1.9
Barbed and twisted	185,679	0.4	264,629	0.4	256,991	0.4	207,610	0.4	234,209	0.4	213,825	0.5	231,021	0.7
Woven wire fence	303,314	0.6	399,457	0.6	407,295	0.6	383,230	0.8	373,920	0.7	230,278	0.5	273,596	0.8
Bale ties	38,280	0.1	113,892	0.2	119,917	0.2	99,993	0.2	82,609	0.1	67,610	0.1	59,547	0.1
All other wire products	.....	....	.....	....	.....	....	.....	....	.....	....	5,302	0.0	5,766	0.0
Fence posts	.....	....	.....	....	.....	....	.....	....	.....	....	54,434	0.1	60,439	0.1
Black Plate, Ordinary	385,844	0.8	821,398	1.3	801,745	1.3	781,167	1.6	626,534	1.1	282,551	0.6	269,341	0.8
Chemically treated			17,268	....	19,252	....	125,170	0.3	114,949	0.2				
Tin and Terne Plate, Hot dipped	1,415,317	2.9	2,167,912	3.3	2,093,149	3.3	1,924,657	3.9	2,048,153	3.6	2,689,856	5.9	2,561,451	7.3
Electrolytic	1,625,080	3.4	1,784,288	2.7	1,617,859	2.6	909,173	1.9	861,634	1.5				
Sheets, Hot rolled	5,160,098	10.7	7,786,056	11.8	7,891,738	12.5	5,956,633	12.2	6,327,995	11.2	6,197,810	13.5	5,087,886	14.6
Cold rolled	5,567,663	11.5	6,867,775	10.4	5,504,578	8.7	4,075,554	8.4	2,891,180	5.1	2,436,539	5.3	2,021,859	6.1
Galvanized	1,390,523	2.9	1,643,337	2.5	1,609,881	2.5	1,462,053	3.0	1,693,795	3.0	1,551,374	3.4	1,394,922	4.0
Strip, Hot rolled	1,373,837	2.8	1,662,787	2.5	1,740,065	2.7	1,363,812	2.8	1,369,094	2.4	1,349,188	2.9	1,160,513	3.3
Cold rolled	1,186,727	2.5	1,783,383	2.7	1,613,005	2.6	1,282,146	2.6	1,275,670	2.3	790,346	1.7	676,397	1.9
Wheels (car, rolled steel)	244,705	0.5	337,376	0.5	356,873	0.6	252,308	0.5	292,637	0.5	191,870	0.4	150,750	0.4
Axles	147,245	0.3	215,905	0.3	185,019	0.3	130,461	0.3	146,867	0.3	108,088	0.2	73,970	0.2
All other	562,559*	1.2	.....	....	.....	....	6,266	0.0	41,719	0.1	10,138	0.0	9,724	0.0
Total Steel Products	48,279,244	100.0	65,973,136	100.0	63,057,150	100.0	48,775,532	100.0	56,602,322	100.0	45,965,971	100.0	34,955,175	100.0

† Included with carbon. * Includes long ternes, 120,491 tons; Enameling sheets, 135,641 tons; and electrical sheets, 299,744 tons.

WORLD STEEL PRODUCTION, THOUSANDS OF NET TONS

Ingots and Castings, Thousands of Net Tons

Compiled by THE IRON AGE from the United Nations Bulletin of Statistics, Chambre Syndicate de la Siderurgie Francaise, British Iron and Steel Federation and the American Iron and Steel Institute.

	1949*	1948[1]	1947	1946	1945	1944	1943	1942	1941	1940	1939
Australia	988	1,425	1,373	1,164	1,505	1,703	1,822	1,901	1,835	1,439	1,307
Austria	905	713	394	207	189	....	....	....	....	....	....
Belgium	4,185	4,318	3,181	2,508	805	670	1,834	1,518	1,782	2,088	3,429
Brazil	528	545	426	379	227	243	205	176	170	156	125
Canada	....	3,159	2,902	2,293	2,803	2,930	2,872	2,986	2,623	2,174	1,509
Czechoslovakia	2,756	2,910*	2,520	1,843	1,045	2,778	2,831	2,619	2,659	2,606	2,526
France	10,146	7,384	6,338	4,659	1,822	3,408	5,651	4,947	4,751	4,864	6,763
Germany	9,895[2]	6,127[2]	4,739[2]	3,604[2]	5,500	28,481	33,706	31,684	25,804	23,732	26,152
Hungary	882	794*	658	389	142	766	856	865	861	827	808
India	1,481	1,237	1,346	1,373	1,426	1,465	1,518	1,452	1,531	1,399	1,135
Italy	2,235	2,342	1,874	1,269	436	1,138	1,905	2,130	2,275	2,487	2,513
Japan	3,135	1,916	1,041	608	1,177	7,032	9,676	8,760	8,349	8,288	8,124
Luxembourg	2,476	2,705	1,888	1,426	291	1,389	2,368	1,720	1,376	1,138	1,931
Mexico	393	268	353	277	201	199	194	104	104	104	085
Poland	2,315	2,116*	1,731	1,344	546	755	870	....	....	1,600	1,790
Saar	1,348	1,922	780	317	....	....	....	....	....	....	2,235
South Africa	713	750	660	568	594	541	462	370	370	396	343
Spain	677	804	581	656	617	546	721	663	633	766	644
Sweden	1,477	1,270	1,311	1,335	1,327	1,320	1,338	1,354	1,275	1,280	1,270
United Kingdom	17,326	16,662	14,246	14,220	13,243	13,599	14,595	14,495	13,790	14,527	14,808
U.S.S.R.	23,500	18,700	14,730†	13,400†	12,300†	13,300	12,200	10,900	16,600	20,130	20,719
United States	77,560	88,640	84,894	66,603	79,702	89,642	88,837	86,032	82,839	66,983	52,799
Totals	164,973	167,107	147,156†	120,345†	125,898†	171,905	184,461	174,676	169,627	156,992	150,780

* Estimated. [1]Revised. [2] British, French and United States Zones.

NEED LATER DATA?

Additional data, and other information concerning the subjects listed in this Metal Industry Fact Issue, may be obtained at any time during the coming year by writing Editor, Metal Industry Fact Issue, The Iron Age, 100 E. 42nd St., New York 17.

THE IRON AGE

METAL INDUSTRY FACTS ISSUE

SECTION 3

WELDING AND JOINING
MACHINING, TOOLS, ETC.
FASTENERS

PRODUCTION DATA
OPERATING COSTS
EMPLOYMENT & WAGES
VALUE OF PRODUCT
INDUSTRY ASSOCIATIONS
HIGHLIGHTS OF '49

SPOTLIGHTING 1949

Important Events Briefly Reviewed

Jan. 6—National Machine Tool Builders Assn. announced admission of press and forging machinery builders to membership. National Military Establishment announced beginning of publication of new regulations on how "Renegotiation Act of 1948" is to be applied on contracts for machine tools.

Jan. 13—Machine tool plant productivity study by Bureau of Labor shows man-hr requirements up 10 pct in 1947.

Jan. 20—Adjustable fixture that increases utility of special purpose machine announced by Snyder Engineering Co., Detroit.

Feb. 10—Oldsmobile shows gaging methods at new Kettering engine plant. Submerged arc skip-welding technique announced by Oldsmobile.

Feb. 17—Truck-Trailer Manufacturers Assn. hold annual convention.
Cutting Tool Mfrs. Assn. elect new officers.

Feb. 24—Motch & Merryweather open new machine tool plant. European Machine Tool production hits prewar rates.

Mar. 10—Carboloy, Inc., announces new tool control plan. Snyder Tool & Engineering Co. buys Arthur Colton Co.

Mar. 24—Carbide Cutting tool course offered by Wendt-Sonis, Hannibal, Mo.

Mar. 31—American Society of Tool Engineers holds annual meeting in Pittsburgh; study basic metal processing techniques.

Mar. 31—Westinghouse Electric Corp. machine tool electrification forum announced.

Apr. 7—Mist coolant system announced for cutting grinding.

Apr. 14—Purdue University announces machinability symposium. Stress peening, a new technique for obtaining better stress properties, announced by American Wheelabrator Co.

Apr. 28—JANMAT ordered to wind up affairs. First announcement of hot machining made in article, "Hot Milling—Milling High Strength Alloys at Elevated Temperatures," by A. O. Schmidt, Kearney & Trecker Corp.

May 5—Air Forces study methods of forming wing skins, discuss "Skin Milling."

May 19—Faster industry faces price tests and lower backlogs.
International Acetylene Assn. annual meeting held in Pittsburgh.

June 2—British industrial team visits United States to study forging methods.

June 9—SAE holds annual meeting at French Lick, Ind.

June 16—American Gear Mfrs. Assn. urge gear standardization at annual meeting. Machine tool makers form American Services, Inc., a new corporation to facilitate foreign sales.

June 30—Carboloy, Inc., announces reduction in carbide die prices. Vermont machine tool builders hold local product exhibition

July 7—National Machine Tool Builders' Assn. prepares for first of its summer sales conferences at Cornell University. Similar courses are planned for Western Reserve, Dartmouth and Purdue.

July 21—Publication of the first article on hot machining with single point tools, "Hot Spot Machining," by Sam Tour and S. L. Fletcher of Sam Tour & Co., Inc.

July 28—Cincinnati Milling Machine Co., reported the development of a new type grinding wheel. Full details of the American-British-Canadian specifications for screw thread unification completed.

Aug. 4—First article ever published on American developments in the "Cold Extrusion of Steel" appeared in THE IRON AGE.

Aug. 11—Machine tools shipments for 1948 pegged at $277,500,000 by the Bureau of Census. Lathes, grinding and polishing machines and milling machines accounted for 60 pct of shipments in 1948.

Aug. 18—A Supplement to Handbook H28 (1944) on Screw Thread Standards for Federal Services issued by the National Bureau of Standards.

Sept. 15—American Society of Tool Engineers announces Philadelphia as site of 1950 Annual Meeting and Exposition. Date of exhibition is Apr. 10-14, 1950.

Sept. 22—National Machine Tool Builders Assn. urges evaluation of machine tools as investments on the the same basis as securities.

Oct. 6—THE IRON AGE Metal Show issue points to "Economy in Production" methods with articles on heat treating, short run stamping practice, and lower welding costs.

Oct. 27—National Tool & Die Mfrs. Assn. holds convention Oct. 30 to Nov. 2, New York.

Nov. 3—SAE leaders report on economies of transfer type machining.

Nov. 10—British cold welding process licensed to American firm, Koldweld Corp., New York.

Nov. 17—European machine tool business prospects reported promising, despite devaluation of British currency. French machine tool and metalworking industry representative visit United States on 6-week productivity study.

Nov. 17—Operations at the new $2 million plant of Carborundum Co. at Vancouver, Wash., announced ready to commence.

Nov. 24—National Machine Tool Builders Assn. annual meeting discloses sales problem and Government activities including renegotiation, depreciation, and ECA-European markets.

Quick Guide to section No. 3

A complete cross-referenced index is on p. 3.

Metal Industry Facts

Welding and joining
Machining, tools, etc.
Fasteners

GEAR ORDERS

Index of New Order Bookings 1935-1939 = 100

Source: American Gear Manufacturers Assn.

	January	February	March	April	May	June	July	August	September	October	November	December
1935	67.2	63.4	61.8	70.0	77.1	86.5	78.6	99.6	76.5	75.1	70.5	77.8
1936	89.1	90.2	91.7	104.6	105.9	102.9	111.6	113.5	118.2	115.8	115.8	134.6
1937	150.5	127.8	202.5	167.7	125.6	135.5	129.2	131.3	125.7	148.2	132.9	100.4
1938	96.7	78.9	93.5	72.1	68.3	59.9	68.3	75.3	84.8	72.2	68.8	77.3
1939	87.7	84.3	105.0	86.7	90.7	93.5	89.8	93.7	125.5	133.3	128.6	110.0
1940	126.5	113.4	114.4	128.5	130.9	126.9	132.9	184.4	177.3	198.0	170.1	202.1
1941	251.4	557.1	392.0	263.4	246.1	269.3	282.5	257.1	216.1	240.4	241.0	233.9
1942	298.9	323.4	455.3	376.1	430.4	382.7	345.7	395.8	354.9	228.4	329.9	302.2
1943	326.0	365.8	417.0	257.4	376.9	472.5	424.8	347.8	380.0	390.8	246.9	411.2
1944	252.5	203.3	418.8	247.4	323.4	274.5	221.4	220.6	285.5	279.0	220.3	226.9
1945	299.2	261.8	345.8	300.5	227.7	240.1	203.5	154.6	186.9	240.2	234.3	212.8
1946	265.8	225.4	265.9	290.9	258.8	279.0	362.2	330.9	292.9	245.4	280.9	386.1
1947	317.0	303.0	342.9	346.2	317.2	278.0	278.5	261.6	297.7	317.7	356.9	343.6
1948	346.8	324.4	389.8	320.9	283.6	324.1	348.4	335.6	320.4	333.3	309.0	325.9
1949	320.7	282.3	299.1	339.0	250.1	227.8	193.1	262.0	224.9	242.3	.....	.....

INDEX OF ORDERS AND SHIPMENTS OF MACHINE TOOLS

(1945-46-47 = 100 Pct)

Source: National Machine Tool Builders Association

	New Orders, Net	Foreign Orders, Net	Shipments 3 Month Average Centered	Ratio of Unfilled Orders to Shipments
1942: Jan.	362.9	....	285.3	....
Feb.	447.7	....	300.2	....
Mar.	1141.3	....	322.6	....
Apr.	858.6	....	348.3	....
May	585.1	....	362.7	....
June	475.4	....	374.3	....
July	406.1	....	385.6	....
Aug.	325.3	....	395.5	....
Sept.	254.0	....	413.9	....
Oct.	223.2	....	418.9	....
Nov.	254.3	....	431.6	....
Dec.	189.7	....	384.0	....
1943: Jan.	162.7	....	376.9	....
Feb.	215.8	....	369.6	....
Mar.	289.8	....	403.6	....
Apr.	193.4	....	402.8	....
May	184.4	....	384.0	....
June	137.0	....	360.9	....
July	91.6	....	315.0	....
Aug.	111.6	....	305.7	....
Sept.	104.8	....	284.0	....
Oct.	104.5	....	266.0	....
Nov.	107.5	....	237.8	....
Dec.	94.0	....	213.1	....
1944: Jan.	99.9	....	188.6	....
Feb.	112.3	....	178.6	....
Mar.	139.3	....	161.7	....
Apr.	167.7	....	152.3	....
May	199.5	....	140.5	....
June	168.1	....	130.8	....
July	109.9	....	123.3	....
Aug.	137.3	....	117.1	....
Sept.	112.3	....	124.4	....
Oct.	193.8	....	123.7	....
Nov.	197.2	....	126.1	....
Dec.	210.0	....	127.2	....
1945: Jan.	197.7	....	128.7	....
Feb.	191.6	....	132.1	....
Mar.	180.5	....	136.3	....
Apr.	94.9	....	141.2	....
May	99.3	....	143.0	....
June	72.5	....	134.0	....
July	53.9	....	124.8	....
Aug.	11.5	....	108.3	....
Sept.	51.6	6.4	106.3	....
Oct.	64.4	11.3	99.1	....
Nov.	79.0	16.7	94.3	....
Dec.	112.6	49.6	93.1	....
1946: Jan.	115.6	44.3	93.9	6.4:1
Feb.	79.8	24.0	98.4	7:1
Mar.	100.6	26.6	96.1	7:1
Apr.	123.4	25.3	96.1	7:1
May	107.9	24.1	97.7	7.4:1
June	109.1	35.7	90.8	7.1:1
July	98.0	29.3	90.2	9:1
Aug.	99.9	22.4	86.1	7.5:1
Sept.	86.4	18.3	93.3	7.8:1
Oct.	85.3	22.1	92.6	6.7:1
Nov.	73.2	24.5	95.2	7.1:1
Dec.	72.7	21.8	92.4	6.8:1
1947: Jan.	71.1	21.0	93.1	6.4:1
Feb.	63.8	15.8	94.8	6:1
Mar.	74.3	20.1	95.4	5.2:1
Apr.	69.8	18.8	94.3	5.3:1
May	76.9	18.3	88.9	5.2:1
June	90.9	17.2	79.5	5.5:1
July	81.1	16.7	71.0	7.4:1
Aug.	62.1	14.8	68.8	7.5:1
Sept.	63.7	14.7	78.5	5.9:1
Oct.	81.0	16.0	85.5	4.6:1
Nov.	75.6	11.5	92.6	5.1:1
Dec.	81.1	14.8	86.1	4.1:1
1948: Jan.	83.1	14.0	88.9	5.4:1
Feb.	73.3	12.7	82.0	4.7:1
Mar.	86.3	16.1	84.2	4.6:1
Apr.	86.3	14.1	82.7	4.7:1
May	73.5	11.4	88.3	4.5:1
June	83.4	11.9	79.8	3.8:1
July	74.0	13.3	75.5	5.9:1
Aug.	73.7	13.6	72.3	5.2:1
Sept.	71.1	11.6	78.3	4.2:1
Oct.	67.4	14.0	80.4	4.2:1
Nov.	72.2	18.1	84.5	4.4:1
Dec.	78.7	16.2	80.6	8.2:1
1949: Jan.	87.0	21.9	78.7	4.6:1
Feb.	80.9	26.5	71.6	4.7:1
Mar.	93.5	22.3	73.6	4.4:1
Apr.	70.1	23.1	74.4	4.4:1
May	63.7	15.8	75.5	4.4:1
June	53.6	15.7	70.8	3.5:1
July	48.0	14.0	69.9	4.4:1
Aug.	51.5	18.8	65.2	3.8:1
Sept.	57.7	13.7	....	3.7:1
Oct.	....	....	....	....

SELECTED TYPES OF MACHINE TOOLS, PRODUCTION BY NUMBER AND VALUE

Thousands of Dollars

Source: Dept. of Commerce and War Production Board

	1931		1933		1935		1937		1939		1942	
	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value
Horizontal and Vertical Boring Machines	14	$ 795	118	$ 519	604	$ 4,530	1,456	$11,060	1,493	$14,167	9,697	$137,472
Special Boring Machines		2,547		457		2,598						
Horizontal, Vertical and Radial Drills	2,376	3,340		967		5,237		11,888		12,373	47,654	103,726
Automatic Combination and Other Drills		2,065		889		1,968		5,367				
Gear Cutting Machines		3,569		1,030		4,673	1,855	10,860	1,730	11,242	[3]6,435	51,884
Grinding Machines		8,662		3,627		13,211		28,177		30,273	54,009	209,345
Honing and Lapping Machines							147	575	692	1,874		
Lathes, Engine	2,807	2,894	3,298	1,425	14,741	5,142	21,924	14,620	11,748	15,852		
Automatic and Hand Operated, Horizontal Turret		4,766	443	1,702		13,623		37,248	5,537	31,560	[4]88,878	455,250
Other Lathes		1,034		768		792		3,246		6,982		
Milling Machines		3,845		1,341		6,956	5,061	19,586	5,334	23,136	47,565	240,223
Broaching Machines							594	2,237	470	2,296	1,007	9,022
Planers	52	429					136	1,556	161	4,483	981	29,931
Shapers and Slotters	225	444	35	58	463	922	1,131	2,648	[2]1,163	1,892		
Threading Machines	[1]595	1,010	493	331		1,986		4,179		3,536		
Miscellaneous											[5]50,980	78,915

	1943		1944		1945		1946		1947		1948	
	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value
Horizontal and Vertical Boring Machines	7,278	$103,144	3,070	$44,321	1,901	$29,415	1,888	$27,454	1,444	$25,825	1,268	$24,098
Special Boring Machines												
Horizontal, Vertical and Radial Drills	41,581	94,747	21,994	46,623	11,731	22,784		33,970		33,517		32,816
Automatic Combination and Other Drills												
Gear Cutting Machines	6,186	54,608	2,683	28,962	1,295	11,443	1,852	17,820	1,682	17,719	1,367	16,407
Grinding Machines	58,810	228,280	21,687	85,413	10,741	43,413	97,799	57,123		56,364	98,792	48,254
Honing and Lapping Machines												
Lathes, Engine												
Automatic and Hand Operated, Horizontal Turret	80,196	410,670	43,209	168,780	23,929	93,688	42,927	103,324		92,908	29,322	81,106
Other Lathes												
Milling Machines	30,819	192,695	10,975	71,015	5,799	35,407	9,929	41,155	7,504	35,278	6,064	34,914
Broaching Machines	802	7,507	416	3,151	281	2,222	573	4,657	532	4,956	343	3,779
Planers	618	20,852	344	10,962	226	7,344	206	4,853	152	4,018	157	4,828
Shapers and Slotters							2,110	7,159	1,787	6,880	1,369	5,826
Threading Machines							475	1,640	618	2,363	533	2,296
Miscellaneous	45,599	67,753	31,878	38,218	17,071	21,171		31,954		52,528		24,167

[1] Does not include pipe.
[2] Shapers only.
[3] Includes gear finishing.
[4] Includes automatic screw machines.
[5] Includes shapers, slotters, key seaters, honing and lapping machines, polishing and buffing, tapping and threading, and machine tools not elsewhere classified.

Metal Industry Facts

Welding and joining
Machining, tools, etc.
Fasteners

PRODUCTION OF MACHINE TOOL ACCESSORIES, VALUE

Source: Dept. of Commerce

	1933	1935	1937	1939	1947
Attachments and Fixtures	$25,294,000	$58,491,000	$94,997,000	$104,403,000	.....
Chucks	714,000	1,873,000	4,566,000	4,331,000	.....
Machine Vises	81,000	161,000	234,000	227,000	.....
Lathe Attachments	104,000	229,000	728,000	586,000	.....
Boring, Drilling, Milling Attachments	805,000	1,028,000	1,384,000	2,656,000	.....
Other Attachments	99,000	628,000	1,051,000	1,612,000	.....
Small Tools and Tool Holders	17,509,000	39,367,000	67,248,000	53,628,000	.....
Arbors, Collets and Collars (Lathe, Mill, Drill)	164,000	499,000	995,000	1,505,000	.....
Counterbores	56,000	507,000	1,058,000	770,000	.....
Drills:					
Carbon	.....	.....	.....	.....	.....
HSS	.....	.....	.....	.....	.....
Hobbing Cutters	484,000	2,131,000	2,970,000	3,126,000	$6,263,000
Milling Cutters, Solid	2,447,000	5,262,000	10,200,000	7,995,000	28,822,000
Inserted Tooth	1,212,000	1,788,000	850,000		
Threading Tools (Except Pipe):					
Taps	1,848,000	3,806,000	7,827,000	5,940,000	22,030,000
Dies	682,000	1,513,000	1,955,000	2,583,000	7,746,000
Chasers	1,018,000	1,789,000	2,539,000	3,056,000	6,971,000
Precision Measuring Tools (Micrometer, Vernier)	186,000	1,183,000	1,581,000		
Plug, Ring, Snap, Thread Gages	781,000	1,332,000	3,003,000	5,579,000	33,825,000
Other Measuring Tools	618,000	1,575,000	2,229,000		
Gear Cutters other than Hobbing	.....	.....	2,318,000	2,351,000	7,832,000
Drills:					
Carbon	4,508,000	8,981,000	2,986,000	2,484,000	7,344,000
High Speed Steel			12,202,00p	9,972,000	32,461,000
Carbide	.....	.....	.....	.....	896,000
Broaching Cutters:					
High Speed Steel	.....	.....	.....	2,731,000	9,451,000
Carbide Tipped	.....	.....	.....		751,000
Reamers:					
Carbon	1,220,000	3,184,000	5,062,000	857,000	2,569,000
High Speed	.....	.....	.....	2,637,000	10,408,000
Carbide	.....	.....	.....	.....	2,148,000

Exports of Air Compressors Quantity and Value

Source: Bureau of Census

	25 Cu Ft and Under		Over 25 Cu Ft	
	Number	Value, $1000	Number	Value, $1000
1930	9,711	$884	3,679	$4,721
1931	5,647	513	1,387	1,577
1932	2,465	192	681	1,078
1933	2,945	211	627	837
1934	3,884	301	1,051	1,357
1935	3,788	301	1,227	1,590
1936	4,371	311	1,203	1,441
1937	5,751	392	1,971	2,849
1938	4,120	313	1,508	3,074
1939	5,017	343	1,560	2,452
1940	4,066	342	1,381	2,706
1941	5,061	447	1,988	3,847
1942	4,235	278	2,106	2,963
1943	1,854	239	1,704	5,448
1944	3,783	440	2,048	6,182
1945	7,223	762	2,389	4,020
1946	12,620	1,473	4,510	6,609
1947	16,700	2,523	5,998	10,389
1948	11,295	1,837	4,728	7,845

MACHINE TOOL INDUSTRY

Average Hourly and Weekly Earnings, Hours Worked per Week, and Number of Production Workers in Machine Tool Industry

Source: National Industrial Conference Board and Bureau of Labor Statistics

Year	Average Hourly Earnings	Average Weekly Earnings	Average Work Week Hr.	Production Workers (Thousands)
1932	.586¢	$18.16	31.0	.....
1933	.568	19.25	33.9	.....
1934	.619	22.58	36.5	.....
1935	.637	25.57	40.1	.....
1936	.648	28.10	43.5	.....
1937	.714	31.78	44.5	.....
1938	.735	28.68	36.5	.....
1939	.752	32.25	42.9	36.6
1940	.788	36.97	46.2	56.8
1941	.843	43.55	51.7	81.8
1942	.971	51.86	53.4	112.2
1943	$1.068	54.37	50.9	109.7
1944	1.131	57.39	50.7	79.0
1945	1.183	56.57	47.8	66.7
1946	1.265	53.80	42.5	59.7
1947	1.389	57.69	42.1	54.5
1948	1.486	61.45	41.9	48.1
1949: Jan.	1.504	61.07	40.6	44.1
Feb.	1.507	60.57	40.2	43.3
Mar.	1.509	59.84	39.7	42.5
Apr.	1.510	58.99	39.1	41.7
May	1.514	58.94	38.9	40.5

Production Machine Shops Operated by U. S. Metalworking Plants Employing 21 or More Plant Workers

(Source: THE IRON AGE Basic Marketing Data)

Alabama	81	Nebraska	47
Arizona	6	Nevada	2
Arkansas	13	New Hampshire	47
California	788	New Jersey	636
Colorado	52	New Mexico	3
Connecticut	419	New York	1241
Delaware	25	North Carolina	58
District of Columbia	8	North Dakota	2
Florida	43	Ohio	1489
Georgia	81	Oklahoma	73
Idaho	8	Oregon	65
Illinois	1435	Pennsylvania	1103
Indiana	454	Rhode Island	163
Iowa	165	South Carolina	12
Kansas	73	South Dakota	5
Kentucky	75	Tennessee	91
Louisiana	39	Texas	213
Maine	25	Utah	15
Maryland	101	Vermont	33
Massachusetts	615	Virginia	60
Michigan	1098	Washington	94
Minnesota	192	West Virginia	62
Mississippi	16	Wisconsin	484
Missouri	252	Wyoming	3
Montana	4	Total	12,043

NEED LATER DATA?

Additional data, and other information concerning the subjects listed in this Metal Industry Fact Issue, may be obtained at any time during the coming year by writing Editor, Metal Industry Fact Issue, The Iron Age, 100 E. 42nd St., New York 17.

Machinery (except electrical) Employment, Hours and Earnings

Source: Bureau of Labor Statistics

	All Employees	Production and Related Workers			
	Number (thousands)	Number (thousands)	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings
1947	1,535	1,217	$55.89	41.4	$1.350
1948	1,533	1,203	60.82	41.2	1.469
1949:					
Jan.	1,481	1,155	61.72	40.5	1.524
Feb.	1,456	1,133	61.57	40.4	1.524
Mar.	1,431	1,108	60.85	39.9	1.525
Apr.	1,385	1,068	59.55	39.1	1.523
May	1,327	1,014	59.70	39.2	1.523
June	1,285	977	59.90	39.2	1.528
July	1,239	936	59.63	39.0	1.529
Aug.	1,226	923	.....	.....	.....

FINANCIAL DATA ON MACHINERY MANUFACTURERS (EXCEPT ELECTRICAL)

(Millions of Dollars)

Source: National Industrial Conference Board

	Total Income	Wages and Salaries	Interest	Taxes, Incl. Income and Excess Profit	Corporate Profits after Taxes			Income of Unincorporated Enterprises
					Total Profit	Dividends	Undistributed Profits	
1930	1,485	1,184	−22	38	271	214	57	16
1931	755	782	−23	13	−19	137	−156	2
1932	298	496	−21	5	−179	70	−249	−3
1933	476	500	−19	11	−67	47	−114	1
1934	735	685	−18	26	35	81	−46	7
1935	1,021	831	−18	38	158	105	53	12
1936	1,398	1,048	−18	73	275	182	93	20
1937	1,759	1,389	−12	101	258	220	38	23
1938	1,247	1,007	−16	46	196	140	56	14
1939	1,492	1,165	−16	66	258	154	104	19
1940	2,181	1,502	−19	240	426	200	226	32
1941	3,850	2,430	−22	774	611	238	373	57
1942	5,379	3,704	−27	1,076	520	211	309	106
1943	5,917	4,310	−24	997	492	187	305	142
1944	5,840	4,344	−18	818	555	189	366	141
1945	5,058	4,055	−15	601	287	182	105	128
1946	4,480	4,017	−15	251	92	199	107	126
1947	6,117	4,948	−16	499	529	251	278	157

EXPORTS OF MACHINE TOOLS, DOLLAR VOLUME

Source: National Machine Tool Builders Assn., Foreign Trade Div., Bureau of Census

	1926	1927	1928	1929	1930	1931	9132	1933	1934	1935	1936	1937
France	870,240	1,217,500	2,886,662	3,592,614	1,992,599	759,537	526,257	405,427	1,975,837	1,451,995	1,400,987	3,456,243
Germany	509,088	2,310,028	1,715,764	1,362,332	587,683	793,589	72,836	221,762	398,234	272,731	85,174	167,425
Italy	277,561	440,196	669,815	1,141,937	590,466	356,591	252,761	282,415	496,933	3,165,623	1,165,769	1,244,056
Poland and Danzig	39,406	29,713	71,765	72,163		52,938	21,776	320,265	113,927	235,930	264,479	574,272
Russia	356,863	780,956	823,545	1,531,371	7,216,773	11,678,155	1,952,753	343,299	2,255,441	4,563,153	7,250,277	4,701,116
Sweden	208,232	288,787	427,075	897,584	376,004	163,648	23,883	52,570	325,710	526,722	593,672	1,008,294
United Kingdom	1,695,779	2,796,544	2,435,193	3,961,339	2,559,986	2,295,564	1,469,589	1,115,904	2,676,245	3,085,682	7,533,053	10,900,900
All Other Europe	517,796	828,508	2,038,274	1,778,379	1,183,099	289,675	187,220	149,008	338,399	537,530	1,111,733	2,049,471
Canada	837,851	1,691,225	2,780,950	2,358,537	1,442,128	680,868	699,615	197,290	483,045	518,641	1,254,268	2,951,387
All Other North and Central America	306,972	253,850	281,997	311,625	316,326	68,896	47,177	67,574	142,267	251,185	452,898	333,942
South America	544,564	870,367	751,245	608,348	720,826	80,060	43,988	86,087	197,945	351,888	352,199	612,980
Japan	320,202	421,036	496,368	570,295	554,805	159,614	801,893	1,025,236	2,188,601	1,635,837	2,604,994	8,976,817
All Other Asia	160,175	209,627	257,049	378,425	292,457	135,613	47,428	55,714	308,301	426,496	323,156	678,676
Oceania	418,098	365,313	186,609	195,240	123,676	26,332	24,967	35,175	155,436	179,819	230,699	485,955
Africa	136,111	85,018	125,329	100,373	86,379	27,949	18,104	30,971	90,654	149,158	230,725	293,347
Grand Total	7,198,936	12,568,722	15,957,440	18,861,560	18,043,220	17,571,067	6,190,269	4,407,410	12,078,037	17,389,095	24,912,911	38,537,642

	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949**
France	4,287,101	15,769,287	26,076,868	180				2,370,233	26,393,443	11,620,848	6,449,691	
Germany	901,531	469,497							544,661	746,808	35,673	
Italy	748,165	513,992	608,847					258	35,184	486,147	2,570,124	
Poland and Danzig	1,114,347	724,892							4,159,570	4,807,640	2,818,237	26,729,540
Russia	24,216,444	14,327,013	12,332,013	3,679,052	35,577,260	119,586,711	122,228,745	54,165,818	33,437,984	15,442,605	1,804,652	26,729,540
Sweden	672,932	851,859	413,495	7,316				384,781	4,668,897	7,730,980	2,147,573	26,729,540
United Kingdom	6,990,255	19,891,828	109,008,189	104,745,018	71,784,784	68,925,395	19,374,755	4,809,882	3,938,382	6,536,347	7,923,881	26,729,540
All Other Europe	2,529,292	2,315,372	1,663,162	58,593	36,378	140,060	64,397	482,400	11,740,467	17,739,793	13,120,488	26,729,540
Canada	1,472,015	2,548,717	12,673,371	43,433,161	29,805,367	15,770,581	3,994,192	4,708,734	6,052,670	8,218,856	6,743,314	6,524,654
All Other North and Central America	170,936	352,793	377,545	648,701	342,490	831,984	2,041,556	2,902,907	4,070,539	3,893,703	2,342,739	6,524,654
South America	743,017	478,071	1,027,104	1,690,849	658,992	4,424,132	3,681,161	4,313,313	8,951,945	13,784,469	8,967,120	3,987,611
Japan	18,501,722	18,063,085	14,798,533	162,174						137,010	72,207	3,274,426
All Other Asia	1,180,789	2,682,602	1,432,092	39,383,522	4,138,166	6,722,170	7,180,524	2,210,113	3,357,220	8,186,094	4,529,586	3,274,426
Oceania	606,130	538,140	4,055,689	5,907,428	12,634,105	17,704,485	1,472,925	538,400	385,842	3,395,267	1,121,707	695,453
Africa	380,880	239,369	1,077,542	2,262,611	2,556,816	3,016,273	3,560,855	1,704,048	2,198,031	2,631,610	1,939,677	841,283
Grand Total	64,628,143	79,818,943	185,717,037	166,533,438	157,534,358	237,121,792	163,599,140	78,486,867	110,035,671	105,328,177	62,806,037	42,615,139

** January-July.

Metal Industry Facts

Welding and joining
Machining, tools, etc.
Fasteners

Arc or Gas Welding Departments Operated by U. S. Metalworking Plants Employing 21 or More Plant Workers

(Source: THE IRON AGE Basic Marketing Data)

Alabama	72	Nebraska	50
Arizona	7	Nevada	2
Arkansas	10	New Hampshire	21
California	662	New Jersey	388
Colorado	50	New Mexico	4
Connecticut	167	New York	781
Delaware	18	North Carolina	52
District of Columbia	11	North Dakota	2
Florida	47	Ohio	1009
Georgia	87	Oklahoma	74
Idaho	5	Oregon	69
Illinois	908	Pennsylvania	758
Indiana	317	Rhode Island	56
Iowa	144	South Carolina	10
Kansas	79	South Dakota	6
Kentucky	68	Tennessee	90
Louisiana	46	Texas	192
Maine	23	Utah	21
Maryland	100	Vermont	21
Massachusetts	348	Virginia	56
Michigan	719	Washington	103
Minnesota	169	West Virginia	43
Mississippi	15	Wisconsin	332
Missouri	204	Wyoming	2
Montana	6	Total	8,424

Resistance Welding Departments Operated by U. S. Metalworking Plants Employing 21 or More Plant Workers

(Source: THE IRON AGE Basic Marketing Data)

Alabama	49	Nebraska	41
Arizona	4	Nevada	1
Arkansas	8	New Hampshire	15
California	414	New Jersey	306
Colorado	22	New Mexico	..
Connecticut	174	New York	603
Delaware	9	North Carolina	26
District of Columbia	5	North Dakota	..
Florida	23	Ohio	707
Georgia	53	Oklahoma	31
Idaho	2	Oregon	34
Illinois	753	Pennsylvania	460
Indiana	269	Rhode Island	29
Iowa	97	South Carolina	6
Kansas	40	South Dakota	3
Kentucky	52	Tennessee	54
Louisiana	19	Texas	93
Maine	11	Utah	11
Maryland	66	Vermont	9
Massachusetts	266	Virginia	29
Michigan	505	Washington	48
Minnesota	116	West Virginia	26
Mississippi	4	Wisconsin	236
Missouri	172	Wyoming	..
Montana	2	Total	5,903

Brazing Departments Operated by U. S. Metalworking Plants Employing 21 or More Plant Workers

(Source: THE IRON AGE Basic Marketing Data)

Alabama	14	Nebraska	11
Arizona	1	Nevada	..
Arkansas	..	New Hampshire	3
California	191	New Jersey	173
Colorado	14	New Mexico	..
Connecticut	87	New York	295
Delaware	1	North Carolina	12
District of Columbia	3	North Dakota	..
Florida	18	Ohio	278
Georgia	16	Oklahoma	12
Idaho	..	Oregon	16
Illinois	288	Pennsylvania	207
Indiana	66	Rhode Island	27
Iowa	35	South Carolina	2
Kansas	20	South Dakota	2
Kentucky	21	Tennessee	19
Louisiana	9	Texas	44
Maine	6	Utah	3
Maryland	35	Vermont	4
Massachusetts	142	Virginia	10
Michigan	210	Washington	27
Minnesota	31	West Virginia	9
Mississippi	2	Wisconsin	83
Missouri	51	Wyoming	2
Montana	1	Total	2,499

Machine Tool Accessories: Average Hourly and Weekly Earnings, Hours Worked per Week, and Number of Production Workers

Source: National Industrial Conference Board and Bureau of Labor Statistics

Year	Average Hourly Earnings	Average Weekly Earnings	Average Work Week Hr.	Production Workers (Thousands)
1939	$0.777	$31.78	40.9	25.8
1940	.747	35.33	47.3	34.0
1941	.854	43.98	51.5	57.4
1942	.995	53.09	53.4	88.0
1943	$1.109	56.54	51.0	105.4
1944	1.192	59.23	49.7	79.7
1945	1.224	56.91	46.6	69.4
1946	1.328	56.23	42.3	62.0
1947	1.433	59.58	41.6	59.5
1948	1.533	63.62	41.5	55.1
1949: Jan.	1.565	64.35	41.1	53.5
Feb.	1.568	63.65	40.6	52.0
Mar.	1.576	63.84	40.5	50.9
Apr.	1.577	61.99	39.3	49.8
May	1.574	61.64	39.2	47.2

ELECTRIC MOTORS—EXPORTS

Quantity and Value
(Thousands of Dollars)

Source: Dept. of Commerce

	Fractional Hp ⅓ Hp and Under		Fractional Hp Over ⅓ and Under 1 Hp		Stationary, 1 to 200 Hp		Stationary, Over 200 Hp	
	No.	Value	No.	Value	No.	Value	No.	Value
1930	165,258			$3,071	19,464	$3,392	264	$695
1931	125,596			1,821	10,459	1,491	87	844
1932	54,904			638	3,397	498	20	63
1933	49,882			541	3,923	509	30	87
1934	64,017			716	6,031	852	29	71
1935	71,818			749	6,821	1,017	45	403
1936	116,190			975	8,687	1,350	49	116
1937	137,520			1,226	11,518	1,839	107	
1938	103,980	$779	10,734	273	9,875	1,481	91	499
1939	135,544	849	17,285	345	12,654	1,480	100	472
1940	154,395	1,005	15,225	350	16,664	2,485	131	585
1941	198,735	1,250	28,863	603	28,626	2,855	167	1,001
1942	132,523	735	16,532	462	25,712	3,114	73	265
1943	69,974	569	8,991	261	37,136	5,064	235	1,203
1944	65,300	738	15,463	408	40,540	7,514	577	3,638
1945	75,212	878	24,384	621	54,434	9,061	338	1,968
1946	156,222	1,306	37,200	1,050	64,871	9,374	439	2,283
1947	275,255	3,002	80,303	3,079	108,747	13,479	538	2,846
1948	248,717	3,353	80,739	2,895	93,183	15,627	432	3,084
1949 (9 Months)	150,752	1,836	32,276	1,265	11,440	48	385	5,001

METAL CUTTING TOOLS

(Thousands of Dollars)
Value of Production

Source: Dept. of Commerce, War Production Board, Civilian Production Administration, THE IRON AGE

	1931	1933	1935	1937	1939	1941	**1942	**1943	**1944	**1945	**1946	**1947
Broaches					$2,731	.....	.....	.....	.....	.....	.....	$10,202
Counterbores	$323	$56	$507	$1,058	770	.....	.....	.....	.....	.....	.....	
Drills: Carbon	4,897	4,505	8,981	2,988	2,484	.....	.....	.....	.....	.....	.....	4,701
High Speed				12,202	9,927	.....	.....	.....	.....	.....	.....	
Gear Cutters Other Than Hobbing				2,318	2,351	.....	.....	.....	.....	.....	.....	7,832
Hobbing Cutters	1,106	484	2,131	2,970	3,126	.....	.....	.....	.....	.....	.....	6,263
Milling Cutters: Solid	3,326	2,447	5,262	11,050	7,995	.....	.....	.....	.....	.....	.....	28,822
Inserted Tooth	805	1,212	1,786									
Reamers (Solid, Expansion and Inserted Blade):												
Carbon	2,145	1,220	3,184	1,176	857	.....	.....	.....	.....	.....	.....	1,525
High Speed				3,886	2,836	.....	.....	.....	.....	.....	.....	
Lathes, Planers and Shapers*	.....	.....	.....	1,484	2,992	.....	$408,500	$417,500	$306,000	$245,000	$163,500	19,582
Threading Tools:												
Taps and Dies, Not Pipe Threading:												
Taps	2,383	1,848	3,806	7,827	5,584	.....	.....					
Dies	856	652	1,513	1,955	1,362	.....	.....					
Chasers	1,348	1,108	1,789	2,539	2,470	.....	.....					
Pipe Threading:							.....	.....	.....	.....	.....	39,468
Taps	261	405	424	719	356	.....	.....					
Dies	532	456	475	1,356	1,222	.....	.....					
Chasers	1,084	850	1,306	1,298	588	.....	.....					
Pipe Stocks Complete with Dies				1,825	1,541	.....	.....					

* Not including tungsten carbide tipped.
** Total shipments and interplant transfers.

EXPORTS OF MACHINE TOOLS BY TYPES

(Thousands of Dollars)

Source: Foreign Trade Division, Bureau of Census and National Machine Tool Builders' Association

	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949 Jan. thru July
Engine Lathes Including Tool Room Bench Lathes	360	939	1,369	2,825	3,649	6,644	6,534	16,025	13,094	12,939	23,056	19,377	7,918	8,872	7,707	6,335	4,481
													764	1,423	2,332	1,269	769
Turret Lathes Including Vertical Ram and Saddle Type Turret Lathes	208	568	881	1,847	3,839	5,966	7,486	17,844	18,162	21,824	33,997	10,829	2,576	2,793	2,824	811	1,080
													1,893	4,070	3,888	2,299	735
Automatic Chucking and Between-Centers Lathes											10,407	5,821	2,112	5,377	6,798	1,745	1,659
Polishing and Buffing Machines									11,180	11,649	1,968	1,077	1,229	2,113	2,943	1,272	825
Other Lathes	169	610	945	1,337	1,420	2,166	3,399	14,138			6,910	9,489	3,062	6,171	5,661	2,612	875
Vertical Boring and Turning Mills									10,139	7,495	4,445	7,858	5,820	2,970	2,459	1,727	1,334
Other Boring Machines Including Precision	115	502	1,061	1,801	2,362	3,628	5,248	10,112			5,607	6,040	4,680	3,309	3,110	1,727	1,321
Tapping and Threading Machines											4,650	1,062	912	1,375	1,519	1,566	1,650
Automatic Screw Machines, Bar	366	1,017	1,391	2,236	3,759	4,392	5,605	20,036	17,657	16,137	17,579	15,706	763	2,258	3,288	2,905	2,712
Knee and Column Type Milling Machines	262	590	962	1,168	3,599	4,629	6,689	15,191	19,668	17,326	13,921	2,990	2,533	7,618	4,813	2,701	2,208
Other Milling Machines	421	1,281	2,005	2,458	3,639	9,955	12,563	23,831	27,865	18,751	24,499	14,547	5,376	10,868	8,569	5,487	2,506
Gear Cutting Machines	593	1,442	1,441	2,126	2,606	3,106	3,988	7,681	3,985	1,765	6,024	4,379	3,225	3,633	6,221	4,978	2,518
Sensitive Drilling Machines, Except Bench									3,690	2,824	1,911	677	1,129	1,065	1,539	1,098	586
Radial Drilling Machines	69	137	173	226	606	864	977	3,026	1,562	1,557	3,587	2,998	3,002	3,766	2,404	1,107	697
Other Drilling Machines	457	1,441	1,730	2,321	2,527	2,824	3,147	10,245	6 987	5,669	6,211	1,646	1,299	2,557	3,313	1,346	854
Planers	117	201	577	449	1,050	2,794	4,020	5,969	1,924	4,246	2,190	8,891	6,235	4,489	2,511	1,609	974
Shapers									2,469	3,298	3,243	1,731	1,713	3,162	2,109	1,183	574
Surface Grinders	206	356	934	1,081	1,746	2,769	2,559	5,600	5,450	5,587	5,429	4,218	1,869	3,468	3,482	2,003	1,824
External Grinders	291	772	890	1,039	1,568	4,082	3,963	7,136	5,824	3,660	9,214	5,682	2,810	3,412	3,183	1,217	1,707
Internal Grinders	227	974	1,088	1,259	2,451	3,990	4,218	8,294	3,294	3,000	5,614	2,934	1,554	1,972	2,673	1,195	1,200
Tool and Cutter, and Universal Cylindrical Grinders	274	631	1,236	1,552	2,002	3,267	3,891	7,927	5,999	5,475	7,998	7,167	2,409	3,281	3,865	2,069	1,627
Gear Tooth Grinders											989	1,725	763	2,090	1,923	1,339	779
Honing and Lapping Machines											1,435	668	185	1,658	493	151	170
Thread Grinding Machines											3,528	3,631	558	525	745	427	531
Other Grinding Machines	255	607	688	1,088	1,623	3,417	5,478	12,494	7,586	14,332	15,251	6,969	331	462	346	137	226
Horizontal Boring Drilling and Milling Machines											6,602	10,970	4,095	3,870	4,655	3,338	1,541
Other Gear Honing and Finishing Machines													4,105	7,010	2,875	2,426	2,458
Broaching Machines													335	1,072	1,263	918	810
All Other Machine Tools											2,137	1,073	377	527	1,336	554	273
											4,718	3,423	2,845	2,799	4,482	3,256	1,411
Total	4,389	12,047	17,352	24,854	38,445	64,516	79,767	185,554	166,533	157,534	257,122	163,599	78,487	110,036	105,328	62,806	42,615

HIGH FREQUENCY INDUCTION AND DI-ELECTRIC HEATING APPARATUS

Production, Value 1947

Source: Bureau of Census

(Thousands of Dollars)

	Value, f.o.b. Plant
High frequency induction and di-electric heating apparatus, Total	$7,629
Induction heating apparatus:	
Output rating:	
10 KW and under	762
Over 10 KW and under 50 KW	1,467
50 KW and over	1,476
Di-electric heating apparatus:	
Output rating:	
10 KW and under	1,873
Over 10 KW	532
High frequency induction and di-electric heating apparatus, not specified by type	1,519

TOOL AND DIE INDEX

Direct Labor (Man-Hr.) Worked per Month In Average Tool and Die Shop

Source: National Tool & Die Mfrs. Assn.

	1946	1947	1948	1949
Jan.	.....	6,400	5,600	4,780
Feb.	.....	5,980	5,570	4,420
Mar.	.....	6,030	5,700	4,780
Apr.	.....	5,740	5,550	4,150
May	.....	5,560	5,330	4,010
June	.....	5,380	5,360	4,230
July*	5,790	4,900	4,620	.....
Aug.	6,750	5,350	5,340	.....
Sept.	6,510	5,230	5,250	.....
Oct.	6,740	5,760	5,500	.....
Nov.	6,790	5,270	5,020	.....
Dec.	6,450	5,310	5,170	.....

*Shop Closed For Vacation.

MACHINE TOOL INDUSTRY

Production Worker Payroll Index Unadjusted for Seasonal Variation, Monthly Average

Source: Bureau of Labor Statistics

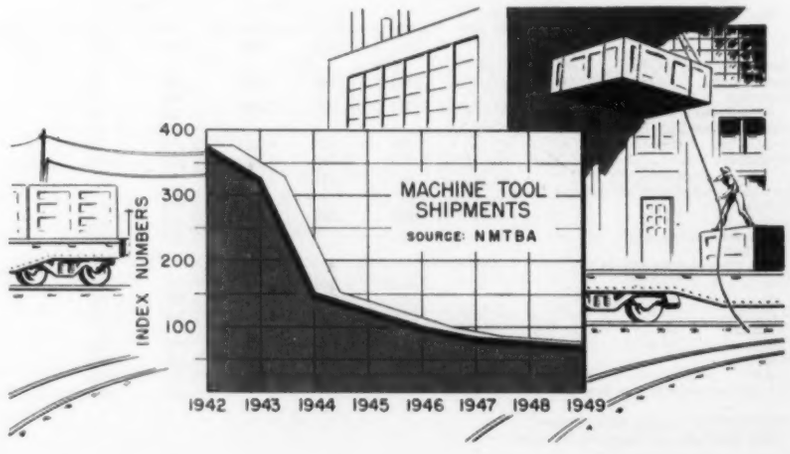
(1939=100)

	Index
1935	50.2
1936	72.2
1937	108.6
1938	69.6
1939	100.0
1940	177.9
1941	302.6
1942	493.8
1943	503.9
1944	383.1
1945	320.0
1946	272.2
1947	263.9
1948	246.6

Corporate Sales and Profits of Machinery Manufacturers (Except Electrical) (Millions of Dollars)

Source: National Industrial Conference Board

	Sales	Profits, After Taxes	Profits, Pct of Sales
1930	3,498	149	4.3
1931	2,295	— 79	— 3.4
1932	1,342	—213	—15.9
1933	1,458	— 45	— 3.1
1934	1,898	85	4.5
1935	2,419	163	6.7
1936	3,358	284	8.5
1937	4,144	354	8.5
1938	3,006	154	5.1
1939	3,463	261	7.5
1940	4,568	448	9.8
1941	7,222	669	9.3
1942	9,437	574	6.1
1943	10,732	484	4.5
1944	11,012	555	5.0
1945	9,801	337	3.4
1946	7,332	318	4.3
1947	10,790	765	7.1



Metal Industry Facts

Welding and joining
Machining, tools, etc.
Fasteners

FASTENERS AND SCREW MACHINE PRODUCTS

Selected Data For the Bolt, Nut, Washer and Rivet Industry and the Screw Machine Products Industry.
(Money Figures in Thousands of Dollars).

Source: Bureau of Census

Industry and Census Year	Number of Establishments	All Employees		Production and Related Workers		Value Added by Manufacture[1]	Cost of Materials, Fuel, Electricity, and Contract Work[2]	Value of Products Shipped[3]
		Number (Average for the Year)	Salaries and Wages, Total	Number (Average for the Year)	Wages, Total			
Bolts, nuts, washers, and rivets:								
1947	364	49,235	$151,514	40,908	$115,790	$285,451	$178,301	$483,752
1939[4]	219	n.a.	n.a.	20,722	26,216	63,999	50,634	114,633
Screw-machine products:								
1947	1,207	28,492	86,850	24,740	68,949	143,853	76,689	220,542
1939[4]	288	n.a.	n.a.	10,571	14,287	31,654	20,910	52,564
Total for bolts, nuts, washers, and rivets and screw-machine products:[4]								
1947	1,571	77,727	238,364	65,648	184,739	429,304	254,990	684,293
1939	507	n.a.	n.a.	31,293	40,503	95,653	71,544	167,197
1937	449	43,125	63,685	38,127	50,118	113,748	87,056	200,804
1935	439	31,854	40,274	27,524	30,200	63,921	56,528	120,449
1933	358	21,624	21,256	18,722	16,106	37,488	28,835	66,323

n.a.—Not available.
[1] Value of products less cost of materials, supplies, fuel, electricity, and contract work.
[2] Figures for years prior to 1935 do not include cost of contract work.
[3] For 1947 and 1929, value of products shipped; for all other years value of products made.
[4] The returns for 1939 have been retabulated to provide figures comparable with those for 1947. Comparable retabulations have not been made for 1937 and prior years. However, the figures for the "Bolts, nuts, washers, and rivets" and the "Screw-machine products" industries have been combined so that figures can be shown for the period 1933-1947.

Bolts, Nuts, Washers and Rivet Industry and Screw Machine Products Industry Employment, Material Costs, Inventories, etc., in 1947

(Money figures in thousands of dollars)
Source: Bureau of Census

	Industry	
	Bolts, Nuts, Washers, and Rivets	Screw Machine Products
Establishments Reporting Detailed Statistics		
Number of establishments	306	887
All employees:		
Number (average for the year)	48,933	27,211
Salaries and wages, total	$150,772	$83,597
Production and related workers:		
Number (average for the year)	40,617	23,491
Man-hours, total thousands	85,321	49,804
Wages, total	$115,110	$65,857
Value added by manufacture	$284,478	$138,234
Cost of materials, fuel, electricity, and contract work	$177,207	$73,359
Materials, parts, containers, and supplies	166,583	66,221
Fuels, total	2,942	790
Purchased electric energy	3,028	1,996
Contract and commission work	4,654	4,352
Value of inventories:		
Beginning of year, total	$58,723	$24,225
Finished products	20,384	3,643
Materials, supplies, and work in process	38,359	20,582
Finished products	25,971	4,750
Materials, supplies, and work in process	44,636	19,730
Expenditures for plant and equipment:		
New plant and equipment	$18,263	$10,800
Construction and major alteration of fixed plants	4,762	2,866
Buildings	4,535	2,559
Other construction	227	307
Machinery and equipment	13,501	7,934
Production machinery and equipment	12,515	7,256
Other machinery and equipment	988	678
Used plant and equipment, and land	2,064	2,288

ELECTRIC MACHINERY AND EQUIPMENT

Shipments of Steel Products to Electric Machinery and Equipment Industry
(Net Tons)

Source: American Iron & Steel Institute

Item	1946	1947	1948	1949	
				8 Months	12 Months*
Ingots, blooms, billets, slabs, sheet bars, and seamless tube rounds	13,928	38,423	11,451	1,385	2,000
Wire rods	17,317	27,086	15,784	5,036	6,700
Structural shapes	22,833	43,223	27,211	13,777	18,500
Plates (sheared and universal)	80,393	145,720	106,677	85,876	110,000
Track spikes	.....	.....	8	1	2
Bars:					
Hot-rolled	94,717	103,348	109,706	51,986	69,000
Cold-finished	42,563	44,341	38,452	16,450	21,800
Concrete reinforcing	.....	.....	.....	65	70
Tool steel	380	342	257	45	75
Pipe and tubes:					
Butt weld	88,763	115,468			
Lap weld	6,837	13,132	138,827	98,429	130,000
Electric weld	1,181	2,103			
Seamless	3,823	1,393			
Conduit	28,190	34,367	48,949	23,587	32,000
Mechanical and pressure tubing	2,676	5,577	8,373	5,055	6,700
Wire:					
Drawn	31,887	56,643	57,129	39,173	50,000
Nails and staples	659	429	847	378	500
Black plate, ordinary	1,345	1,781	4,277	2,204	2,900
Tin and terneplate:					
Hot dip	382	1,033	1,030	869	1,100
Electrolytic	330	1,544	1,017	234	400
Hot-rolled sheets	220,242	245,313	230,652	98,984	130,000
Cold-rolled sheets	85,653	122,030	139,197	59,038	78,000
Coated sheets	30,272	31,453	24,856	14,533	19,000
Electrical sheets and strip	270,568	436,614	450,893	64,973	90,000
Enameling sheets	1,976	2,744	3,606	1,201	1,600
Hot-rolled strip	61,096	78,885	81,159	39,515	52,000
Cold-rolled strip	46,481	42,530	94,118	43,352	57,000
Wheels	2	.....	76	235	300
Axles	10	.....	8	.....	.....
All other	.....	.....	140	.....	.....
Total steel products	1,154,506	1,595,520	1,594,700	.....	.....

* IRON AGE estimate.

Continued

ARCWELDING SETS, ORDERS RECEIVED

(Excluding Exports)

Source: National Electrical Mfgrs. Assn.

Years	Single Operator, Variable Voltage, DC Sets: Motor Drive	Single Operator, Variable Voltage, DC Sets: Engine Drive	Single Operator, Variable Voltage, DC Sets: Generators Only	Transformer Welders: Industrial Type	Transformer Welders: Limited Input Type	Multiple Operator, Constant Potential
1934	3,072	562	.....	.....	.....	41
1935	4,307	860	.....	.....	.....	25
1936	8,766	2,068	737	.....	.....	14
1937	8,182	1,738	1,089	.....	.....	21
1938	4,014	1,007	904	.....	.....	37
1939	7,242	1,525	995	.....	.....	87
1940	13,646	2,649	1,168	2,478		150
1941	35,856	4,412	1,415	4,217		680
1942	60,264	5,051	2,674	8,236		571
1943	30,437	4,747	2,068	4,439		192
1944	30,230	6,023	3,140	15,426		35
1945	20,716	8,776	2,795	21,448		.....
1946	16,467	10,622	2,818	21,093	16,949	.....
1947	13,677	10,822	1,189	9,719	13,034	.....
1948	10,927	10,435	385	8,792	13,690	.....
1949: Jan.	770	558	21	587	816	.....
Feb.	777	435	20	617	848	.....
Mar.	810	666	27	758	1,138	.....
Apr.	664	629	42	574	1,168	.....
May	582	489	73	617	953	.....
June	626	398	16	648	980	.....
July	604	558	17	484	1,081	.....
Aug.	534	457	9	713	1,341	.....
Sept.	579	668	21	554	1,486	.....

RESISTANCE WELDER PARTS

Components, Accessories and Electrodes, Quantity and Value of Product, 1947

(Money Figures in Thousands of Dollars)

Source: Bureau of Census

	Total Shipments and Interplant Transfers: Quantity (Units)	Total Shipments and Interplant Transfers: Value, f.o.b. Plant
Resistance welders, parts, components, accessories and electrodes, Total	.....	$29,874
Spot welders (including single electrode, multielectrode and gun type)	7,990	11,382
Projection welders	888	3,285
Seam welders	228	2,032
Flash and butt welders	1,207	2,356
Other resistance welders	4,839	3,462
Resistance welder transformers (sold separately)	3,257 (M pounds)	877
Resistance welder electrodes	2,140	3,359
Resistance welder accessories (including electrode holders)	.....	1,431
Resistance welders, parts, components, accessories and electrodes, not specified by type	.....	1,720
Electrical welding apparatus, not specified by type	.....	1,645

Fabricated Structural Metal Products

Employment, Hours, and Earnings

Source: Bureau of Labor Statistics

	All Employees: Number (thousands)	Production and Related Workers: Number (thousands)	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings
1947	206.7	164.6	$53.57	41.3	$1.297
1948	215.9	168.7	58.17	41.2	1.412
1949:					
Jan.	212.5	164.5	60.81	41.2	1.476
Feb.	210.5	162.5	60.85	41.2	1.477
Mar.	206.8	159.9	60.26	40.8	1.477
Apr.	204.0	157.3	58.88	40.0	1.472
May	202.3	155.8	59.90	40.5	1.479
June	202.6	156.0	59.95	40.4	1.484
July	200.9	155.1	59.43	40.1	1.482

IMPORTS OF ROLLER BEARINGS

Including Parts, Value, $1000

Source: Bureau of Census

1938	$334	1944	$ 14
1939	181	1945	28
1940	213	1946	187
1941	138	1947	67
1942	28	1948	128
1943	8		

IMPORTS OF BALL BEARINGS

Including Parts, Value, $1000

Source: Bureau of Census

1938	$380	1944	$481
1939	267	1945	65
1940	145	1946	107
1941	676	1947	39
1942	54	1948	55
1943	20		

WELDING WIRE SHIPMENTS BILLED TO AGENTS AND CONSUMERS, LB.

Source: National Electrical Mfrs. Assn.

Year	Total Electrodes	Mild Steel Electrodes	Alloy Steel Electrodes	Nonferrous Electrodes: Bronze and Copper Base	Nonferrous Electrodes: Aluminum and Aluminum Alloys	Nonferrous Electrodes: Hard-facing	Nonferrous Electrodes: Total Non-ferrous
1933	44,527,228	.....	.....	.....	.....	.....	.....
1936	111,000,093	.....	.....	.....	.....	.....	.....
1939	152,863,373	.....	.....	.....	.....	.....	.....
1940	198,995,598	.....	.....	.....	.....	.....	.....
1941	377,564,483	.....	.....	.....	.....	.....	.....
1942	666,965,595	.....	.....	.....	.....	.....	.....
1943	971,929,787	.....	.....	.....	.....	.....	.....
1944	776,993,101	707,786,964	69,736,137	.....	.....	.....	.....
1945	494,819,155	435,789,217	59,029,938	.....	.....	.....	.....
1946	309,117,564	284,126,358	24,991,206	.....	.....	.....	.....
1947	335,078,645	307,756,469	25,172,382	809,668	285,036	50	2,149,788
1948	401,359,255	369,019,831	30,214,928	717,154	202,736	4,255	2,124,496
1949: Jan.	36,448,975	33,467,917	2,790,178	76,556	14,550	4,900	190,880
Feb.	33,857,960	31,705,971	2,003,469	45,661	13,740	2,430	148,520
Mar.	33,360,248	30,449,999	2,315,848	72,248	17,170	1,575	194,401
Apr.	27,388,378	24,533,727	2,718,449	52,957	9,595	1,295	136,202
May	20,677,234	18,565,723	1,975,279	60,852	8,650	595	138,232
June	19,273,554	17,390,987	1,781,607	30,913	9,455	360	100,960
July	21,039,275	18,936,384	1,969,648	37,434	13,210	580	133,233
Aug.	19,365,142	17,783,949	1,472,743	34,863	6,495	480	108,450
Sept.	24,909,459	22,610,040	2,144,312	36,180	15,492	125	155,107
Oct.	22,028,928	20,113,900	1,738,109	56,511	12,215	190	176,919

Continued on Page 194

Continued

MACHINE TOOL AND CUTTING TOOL INDUSTRY

Employment, Production, and Costs

(Money Figures in Thousands of Dollars)

Source: Bureau of Census

Industry and Census Year	Number of Establishments	All Employees: Number (Average for the Year)	All Employees: Salaries and Wages, Total	Production and Related Workers: Number (Average for the Year)	Production and Related Workers: Wages, Total	Value Added by Manufacture[1]	Cost of Materials, Fuel, Electricity and Contract Work[2]	Value of Products Shipped[3]
Machine tools:								
1947	316	70,657	$235,938	54,892	$166,206	$347,965	$153,917	$501,882
1939[4]	224	n.a.	n.a.	36,997	62,867	155,941	65,326	221,267
1937[5]	205	n.a.	n.a.	37,477	62,610	143,224	59,515	202,739
Cutting tools, jigs, fixtures, etc.:								
1947	3,549	88,898	310,834	74,522	242,570	480,375	143,452	623,827
1939[4]	1,015	n.a.	n.a.	25,834	42,405	96,855	32,676	129,531
1937	806	38,099	71,367	32,893	55,957	116,000	46,002	162,002
1935	731	27,222	44,714	23,138	34,414	69,425	27,413	96,838
1933	587	15,007	17,613	12,757	14,159	33,501	10,882	44,383

[1] Value of products less cost of materials, supplies, fuel, electricity, and contract work.
[2] Figures for years prior to 1935 do not include cost of contract work.
[3] For 1947 and 1929, value of products shipped; for all other years, value of products made.
[4] Revised.
[5] The figures for "Machine tools" prior to 1937 are not sufficiently comparable with those for later years because they include data for metalworking machinery other than machine tools which is now classified in "Metalworking machinery," not elsewhere classified."
[6] The returns for 1939 have been retabulated to provide figures comparable with those for 1947. No comparable figures are available for prior years.

WELDING EQUIPMENT OUTPUT, PRODUCTION

By Quantity and Value, for 1947

Source: Bureau of Census

	1947		
	Quantity (000 Lb)	No. Units	Value ($000)
Ac Transformer Arcwelders:			
180 Amp. and Less	.....	32,059	2,799
Over 180 Amp	.....	17,250	3,865
Dc Arcwelders:			
Engine Driven	.....	13,821	10,905
Motor Driven	.....	17,442	7,325
Generators Only	.....	2,051	537
Automatic Arcwelding Heads	.....	552	842
Arcwelding Accessories	.....	.....	4,618
Arcwelding Machines, Parts, Components and Positioners Not Specified by Type	.....	.....	1,219
Arcwelding Electrodes:			
Mild Steel, Cut Lengths	343,218	.....	28,109
Alloy Steel, Cut Lengths (Except Hardfacing)	21,786	.....	8,794
Nonferrous, Cut Lengths (Except Hardfacing)	3,701	.....	3,007
Hardfacing, All Types	5,595	.....	3,280
Electrodes in Coils for Automatic Arcwelding	7,433	.....	797
Resistance Welders, Parts, Accessories and Electrodes:			
Spotwelders including Single and Multi-Electrode and Gun Types	.....	7,990	.....
Projection	.....	668	.....
Seam Welders	.....	228	.....
Flash and Butt Welders	.....	1,207	.....
Other Resistance Welders	.....	4,839	.....
Resistance Welder Transformers (Sold Separately)	.....	3,257	.....
Resistance Welder Electrodes	2,140	.....	3,359
Resistance Welder Accessories	.....	.....	1,431
Resistance Welders Parts, Accessories, Electrodes Not Specified by Type	.....	.....	1,720
Electrical Welding Apparatus Not Specified by Type	.....	.....	1,645

Machine Tool and Cutting Tool Industries

Employment, Material Costs, Inventories and Expenditures for Plant and Equipment, 1947

(Money figures in thousands of dollars)

Source: Bureau of Census

	Industry: Machine Tools	Industry: Cutting Tools, Jigs, Fixtures, etc.
All Establishments		
Number of establishments	316	3,549
All employees:		
Number (average for the year)	70,657	88,398
Salaries and wages, total	$235,938	$310,834
Production and related workers:		
Number (average for the year)	54,892	74,522
Man-hours, total thousands	113,432	156,492
Wages, total	$166,206	$242,570
Value added by manufacture	$347,965	$480,375
Establishments Reporting Detailed Statistics		
Number of establishments	296	2,474
All employees:		
Number (average for the year)	70,526	84,147
Salaries and wages, total	$235,569	$297,923
Production and related workers:		
Number (average for the year)	54,767	69,885
Man-hours, total thousands	113,180	147,240
Wages, total	$165,864	$230,244
Value added by manufacture	$347,786	$459,649
Number of employees for pay period ended nearest Oct. 15:		
All employees	67,065	81,190
Male	60,543	72,564
Female	6,522	8,626
Production and related workers	51,499	67,061
Male	49,775	63,188
Female	1,724	3,893
Force-account construction workers	.....	31
Administrative, supervisory, sales, and all other	15,566	14,078
Male	10,768	9,345
Female	4,798	4,733
Cost of materials, fuel, electricity, and contract work	$153,587	$134,262
Materials, parts, containers, and supplies	145,287	116,548
Fuels, total	2,366	2,475
Purchased electric energy	3,605	4,656
Contract and commission work	2,329	10,605
Value of inventories:		
Beginning of year, total	$156,978	$100,675
Finished products	35,502	28,511
Materials, supplies, and work in process	121,474	72,164
End of year, total	155,531	107,392
Finished products	40,543	34,860
Materials, supplies, and work in process	114,988	72,532
Expenditures for plant and equipment:		
New plant and equipment	$13,838	$25,885
Construction and major alteration of fixed plants	3,524	6,224
Buildings	3,360	5,642
Other construction	164	582
Machinery and equipment	10,312	19,661
Production machinery and equipment	8,991	17,387
Other machinery and equipment	1,321	2,274
Used plant and equipment, and land	3,308	3,742

ADDRESSES AND OFFICERS OF ASSOCIATIONS AND SOCIETIES

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Empire Bldg., Pittsburgh 22
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Exec. Sec. N. C. Goin

American Machine Tool Distributors Assn.
505 Arch St., Philadelphia 6
Pres. O. W. Johaning
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American Society of Mechanical Engineers
29 W. 39th St., New York 18
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20 N. Wacker Drive, Chicago 6
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Metal Abrasive Council
Engineers Bldg., Cleveland 14
Pres. G. H. Kann
Exec. Sec. A. J. Tuscany

Metal Cutting Tool Institute
3114 Chrysler Bldg., New York 17
Pres. M. Britton

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National Screw Machine Products Assn.
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Continued on Page 196

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You will appreciate the micro-inch finish produced at production speeds on Grand Rapids Grinders. All Grand Rapids Hydraulic Feed Surface Grinders have these outstanding features:

1. **One-piece column and base casting for vibrationless rigidity**
2. **Precision ball-bearing spindle which is greased for life**
3. **Bijur one-shot lubrication system eliminating hand oiling**
4. **Patented vertical movement of wheel head for quick, accurate adjustments**
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GRAND RAPIDS GRINDERS

Continued

ARC WELDING MACHINES

Components and Accessories, Production, Value and Quantity

Source: Bureau of Census

(Money Figures in Thousands of Dollars)

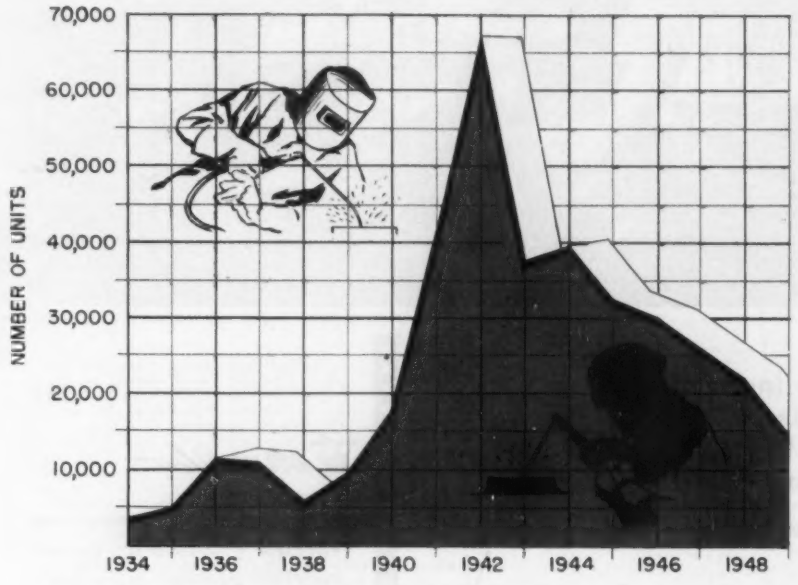
	1947[1]		1939[2]	
	Quantity	Value, f.o.b. Plant	Quantity	Value, f.o.b. Plant
Arc welding machines, welding parts, components and accessories, Total	.....	$32,110	.....	$8,624
Arc welding machines:				
Alternating current transformer arc welders:				
180 amps. and below	32,050	2,799	9,924	1,040
Over 180 amps.	17,250	3,865		
Direct current arc welders:				
Complete units only:				
Engine driven	13,821	10,905	2,255	1,859
Motor driven	17,442	7,325	13,070	3,672
Generators only	2,051	537		
Automatic welding heads for arc welding	552	842		
Accessories for arc welding machinery (including electrode holders, ground clamps, arc torches, and protective devices such as helmets, shields, goggles, etc.)	.....	4,618	.....	2,053
Arc welding machines, welding parts, components, and accessories, not specified by type; and standard positioners for arc welding	.....	1,219		

[1] Total Shipments and Interplant Transfers

[2] Total Production for Sale and Interplant Transfers.

ARC WELDING MACHINE ORDERS

DC SETS, SINGLE OPERATOR, VARIABLE VOLTAGE



BALL AND ROLLER BEARINGS

Value of Products, Totals for the United States

(Thousands of Dollars)

Source: Bureau of Census

	1947 Total Shipments and Interplant Transfers (Value f.o.b. Plant)	1939 Total Production for Sale and Interplant Transfer (Value f.o.b. Plant)[1]
Ball and roller bearings	$352,501	$104,874
Antifriction bearings, unmounted:		
Ball bearings:		
Annular, including self-aligning	134,548	
Thrust	9,391	[2] 51,222
Other ball bearings	4,521	
Roller bearings:		
Cylindrical, including spherical (except thrust)	41,195	
Needle	5,737	[3] 47,432
Thrust (all types)	4,274	
Other roller bearings (including taper, other than thrust)	96,363	
Balls, sold separately	15,081	2,799
Rollers, sold separately	2,516	1,011
Other antifriction bearing components (including cages, housing closures, collars, races, etc.)	19,629	2,410
Mounted bearings:		
Ball	10,867	(2)
Roller	7,230	(3)
Ball and roller bearings and components, not reported by kind	1,149	.....

[1] Detailed data not collected separately in 1939.

[2] Mounted ball bearings are included with unmounted ball bearings for 1939.

[3] Mounted roller bearings are included with unmounted roller bearings for 1939.

Electric Welding Apparatus Industry Consumption of Selected Materials, 1947

Source: Bureau of Census

(Money Figures in Thousands of Dollars)

Metal Shape	Number	Short Tons	Cost
Iron castings, rough and semifinished	10	911	$296
Steel castings, rough and semifinished	(1)	(2)	(2)
Steel mill shapes and forms	n.a.	170,670	16,428
Carbon steel:			
Bars and bar shapes	10	5,617	503
Sheet and strip	18	13,077	1,180
Structural shapes	5	1,469	178
Plates	9	2,148	170
Wire	20	144,109	11,567
All other mill shapes and forms	(1)	1,136	155
Alloy steel, except stainless:			
Bars and bar shapes	(1)		
All other mill shapes and forms	5	642	292
Stainless steel	10	2,472	2,377
Copper and copper-base alloy:			
Brass and wire mill shapes and forms	29	3,512	2,885
Castings, rough and semifinished	17	993	1,122
Aluminum:			
Aluminum mill shapes	(1)	244	151
Castings, rough and semifinished	5	81	132

n.a.—Not Available.

[1] Less than five establishments.

[2] Withheld to avoid disclosing figures for individual companies.

Table summarizes the consumption of selected metal shapes during 1947. For each shape, manufacturers were required to report consumption in quantity and cost provided that such usage during 1947 exceeded the following amounts: Iron and steel castings and 6 carbon steel shapes, 50 net tons; Alloy steel bars and all other alloy steel, 25 net tons; Stainless steel, brass and copper wire mill shapes, copper and brass castings, aluminum castings and mill shapes, 10 net tons. The data shown are for companies consuming more than the above specified amounts.

Steel Castings Consumption

Rough & Semifinished Steel Castings Consumed by Selected Industries*—1947

Source: Bureau of Census

	Number*	Short Tons	Cost (000 omitted)
Pump and compressor	29	12,018	$5,656
Elevators and escalators	5	1,882	785
Conveyer	28	14,838	4,856
Blower and fan	6	1,123	511
Industrial trucks and tractors	15	13,944	3,557
Power transmission equipment	28	7,918	2,338
Industrial furnaces and ovens	5	2,221	665
General industrial machinery (N.E.C.)	18	6,724	2,405
Structural and ornamental products	14	3,041	863
Boiler shop products	21	7,827	2,451
Metal stampings	5	905	209
Steam engines and turbines	10	11,763	5,835
Internal combustion engines	15	7,978	2,778
Tractors	18	49,238	13,781
Farm machinery (except tractors)	44	9,066	3,474
Construction and mining machinery	138	178,029	53,585
Oil field machinery and tools	51	23,566	9,275
Laundry and dry cleaning machinery	5	784	351
Refrigeration machinery	7	7,442	1,912
Motor vehicles and parts	62	83,823	18,676
Truck and bus bodies	9	2,549	854
Truck trailers	23	4,465	1,655
Heating and cooking apparatus (N.E.C.)	8	3,645	1,150
Food products machinery	21	5,027	1,610
Textile machinery	7	1,135	476
Woodworking machinery	13	1,759	398
Paper industries machinery	18	3,492	1,216
Special industry machinery (N.E.C.)	53	22,303	7,277
Shipbuilding and repairing	23	4,393	1,487
Locomotives and parts	14	49,843	20,185
Railroad and street cars	37	124,576	32,952
Motors and generators	19	16,178	6,217
Electrical control apparatus	10	4,024	1,372
Machine tools	17	2,326	997
Metalworking machinery (N.E.C.)	60	46,221	12,048
Cutting tools, jigs, fixtures, etc.	26	4,560	1,310

* Industries reported by Bureau of Census but not included above used less than 5 castings.

THE IRON AGE

METAL INDUSTRY FACTS ISSUE

SECTION 4

NONFERROUS METALS

PRODUCTION

EXPORTS & IMPORTS

CONSUMPTION

STOCKS & ORDERS

PRICES

HIGHLIGHTS OF '49

SPOTLIGHTING 1949

Important Events Briefly Reviewed

Jan. 18—Shortages of Northwest power threaten the already critical aluminum shortage.

Jan. 25—Lead consumers working off inventories, expecting a price drop. Zinc and copper still in short supply, but some pressure is off the copper market.

Feb. 8—Imports of aluminum and lead from ECA nations grow in volume.

Feb. 15—Reynolds Metals Co. and Permanente Metals Co. enter the aluminum cable market.

Feb. 22—Secondary lead offered at 2¢ under market. Lead smelting charge jumps to between $100 and $130 a ton, discounting a price drop. Utah copper strike ends after 103 days.

Mar. 8—Lead price drops 2¢, the first metal price reduction since the beginning of the war. Weakness appeared in all the metals due to the nationwide top management policy of inventory reductions.

Mar. 23—Inventory reductions continue. Zinc drops 1½¢.

Mar. 30—Smelters reduce copper ¼¢, but producers hold prices. RFC transfers 6400 tons of tin to stockpile. Antimony control revoked.

Mar. 31—Willard Dow of Dow Chemical Co. dies in airplane crash.

Apr. 5—Bill passed to suspend 4¢ copper tariff until June 30, 1950.

May 3—Off-grade tin import licenses to be granted. Chinese off-grade tin is offered at 18¢ to 23¢ below RFC price. Copper, lead and zinc producers begin to reduce operations.

May 10—Phelps Dodge drops copper 2¢. Other producers maintained nominal price of 23½¢, while selling on the published monthly average price. Permanente begins foil production with German mill at Permanente, Calif.

May 26—The lead market found bottom at 12¢ New York, 9½¢ below the all-time-peak price of 21.50¢.

June 16—The zinc market reached bottom at 9¢ E. St. Louis, 8½¢ below the postwar peak of 17.50¢.

June 17—The Copper market reached a low of 16.00¢ Valley, a drop of 7½¢ in 2½ months.

June 28—Bill passed permitting RFC to sell tin concentrates to private industry. The only non-government tin smelter is operated by Vulcan Detinning Co. at Sewaren, N. J.

July 5—Tariff of 1 1/16¢ per lb reinstated on lead by not extending suspension. Tin controls extended for another year due to political disturbances in East. Strike begins at U. S. Metals Refining Co., Carteret, N. J.

July 8—Lead is advanced 1¢.

July 11—Copper is advanced ⅝¢.

July 18—Following several new advances in lead, zinc is advanced ½¢.

July 26—Officials of International Union of Mine, Mill & Smelter Workers authorized to sign non-Communist affidavits.

Aug. 4—Permanente Metals Corp. buys three government aluminum plants for $36 million, a reduction plant and rolling mill at Spokane, Wash. and an alumina production plant at Baton Rouge, La.

Aug. 8—The lead market reaches its high point at 15⅛¢ New York.

Aug. 16—ECA investigators report that some European nations who had been receiving ECA aluminum had shipped secondary and primary aluminum to the U.S. that could have been used to reduce their ECA requirements.

Aug. 23—Bunkerhill smelter at Kellog, Idaho, shut down by strike.

Aug. 29—Hillsboro, Ill., zinc plant resumes production after year long strike. Fairmount plant furnaces shut down.

Sept. 1—Zinc market reaches top when Midwestern producers advance to 10.50¢.

Sept. 7—Stockpile purchases of aluminum ingots to the extent of 60 million lb during the fiscal year will be supplied 60 pct by Reynolds Metals and 40 pct by Permanente in payment of government plant rental and purchase.

Sept. 9—Three Kennecott Copper officials killed in airplane crash. E. T. Stannard, president; Arthur D. Storke who was to succeed him; and Russell J. Parker, vice-president, in charge of titanium operations.

Sept. 22—New sterling prices announced by the British Ministry of Supply after the 30 pct devaluation of the pound. Dollar equivalents of copper, lead and zinc are close to the U.S. markets.

Sept. 26—When RFC withdrew from the tin market for a few days, spot tin price dropped by 8¢ to 95¢, the first reduction in the tin market.

Sept. 28—RFC establishes a 96¢ tin price.

Oct. 3—Zinc and lead prices reduced.

Oct. 7—Antimony price reduced 6½¢ to 32¢ Laredo, Tex., under impact of low priced foreign offerings and a quiet market.

Oct. 17—O'Mahoney mine subsidy bill killed in the House. Bill to rescind the suspension of the copper tariff failed to be enacted.

Oct. 18—Congressional action provides $420 million for stockpiling in current fiscal year.

Oct. 28—Strike at Carteret, N. J., refinery ends.

Nov. 14—Bunker Hill strike ends.

Nov. 15—London Metal Exchange opened for trading in tin. A rapid decline in the price begins, followed by repeated reductions in the RFC price which dropped to 78.00¢ by Dec. 31.

Dec. 31—On this date, copper was 18.50¢ Valley; lead, 12.00¢ New York; zinc, 9.75¢ East St. Louis.

Quick Guide to section No. 4

A complete cross-referenced index is on p. 3.

Metal Industry Facts

Welding and joining
Machining, tools, etc.
Fasteners

Heavy Copper Scrap

Dealers' Buying Prices for No. 1 at New York
(cents per pound)
Source: THE IRON AGE

	1947	1948	1949
Jan.	15.50	16.85	18.75
Feb.	15.88	16.44	18.13
March	16.50	16.25	16.66
April	17.00	16.60	14.13
May	16.30	16.75	11.97
June	14.50	16.75	10.60
July	14.65	17.00	11.88
Aug.	15.88	17.88	12.31
Sept.	15.75	17.65	12.93
Oct.	15.75	17.72	12.25
Nov.	15.88	18.47	12.44
Dec.	16.50	19.25	13.26
Average	15.84	17.30	13.78

COPPER LINE PRODUCTION

(U. S. short tons)
Source: U. S. Bureau of Mines

Month	1942	1943	1944	1945	1946	1947	1948	1949
Jan.	85,655	91,729	88,820	70,088	55,381	70,056	73,150	50,403
Feb.	77,514	85,367	87,622	63,962	41,934	68,416	66,943	56,746
Mar.	91,949	93,479	94,446	70,004	42,018	74,651	74,092	77,873
Apr.	87,922	91,420	88,106	67,493	32,295	72,418	74,344	72,657
May	93,139	94,919	88,055	72,018	33,526	75,164	74,779	67,354
June	91,173	89,826	83,480	67,910	33,171	70,150	75,596	61,413
July	91,987	88,352	76,172	62,100	53,948	73,310	71,340	56,910
Aug.	87,031	87,510	77,390	61,817	57,163	72,005	73,546	55,850
Sept.	87,051	90,398	74,846	59,854	62,667	70,770	69,63	58,379
Oct.	93,814	94,821	73,045	61,555	65,625	66,145	68,256	60,180
Nov.	94,973	99,942	68,909	58,664	62,336	63,278	51,318	65,000*
Dec.	97,853	92,055	71,858	57,429	68,673	71,200	50,868	68,000*
Total	1,080,061	1,090,818	972,549	772,894	609,737	847,563	825,868	750,765*

Monthly data for 1942-44 based largely on smelter receipts, those after 1944 represent actual mine output. *Estimate.

Primary Aluminum Production in United States

(short tons)

Source: U. S. Bureau of Mines and Aluminum Association

	1942	1943	1944	1945
Jan.	32,250	60,650	84,750	48,650
Feb.	30,100	55,600	74,400	45,650
March	34,400	64,600	80,200	53,100
April	35,000	66,800	77,800	51,600
May	37,200	72,850	76,450	52,000
June	39,500	74,150	66,400	47,800
July	45,000	78,450	67,550	47,900
Aug.	48,950	81,350	61,650	45,800
Sept.	49,550	86,400	47,450	31,800
Oct.	54,150	94,050	48,400	25,000
Nov.	55,000	91,350	44,450	20,800
Dec.	60,000	93,600	46,850	24,000
Total	521,106	920,179	776,446	495,050

	1946	1947	1948	1949
Jan.	24,750	50,045	48,767	53,356
Feb.	22,250	47,002	45,699	49,749
March	26,000	53,032	51,874	54,852
April	25,900	51,007	53,277	54,076
May	24,850	51,116	55,450	56,909
June	27,800	48,259	48,557	54,184
July	35,750	47,998	52,937	55,777
Aug.	39,650	47,054	54,953	52,005
Sept.	41,100	43,228	53,255	49,742
Oct.	45,000	43,959	54,526	45,790
Nov.	48,300	43,461	50,714	35,000*
Dec.	50,700	47,589	53,474	45,000*
Total	409,630	571,750	623,483	606,000*

* Estimate by THE IRON AGE.

WORLD PRODUCTION OF ALUMINUM

(short tons)

Source: American Bureau of Metal Statistics

Country	1940	1941	1942	1943	1944	1945	1946	1947	1948
United States	206,290	309,067	521,106	920,179	776,446	495,060	409,630	571,750	623,483
Canada	109,144	213,873	340,596	495,750	432,065	215,713	193,400	297,838	372,500
Total America	315,424	522,940	861,702	1,415,929	1,238,511	710,773	603,030	869,588	995,983
Austria	7,358	23,606	40,561	50,700	57,430	5,787	1,138	4,788	14,723
France	88,012	70,437	49,824	51,257	28,825	41,033	52,729	58,670	71,418
Germany	225,524	233,981	250,367	223,842	210,539	*22,000	.....	.....	(d)8,053
Great Britain	21,234	25,385	52,387	62,341	39,724	35,722	35,329	32,407	33,629
Italy	42,758	53,125	50,044	50,926	18,514	4,792	12,169	27,628	36,466
Hungary	3,516	5,489	6,570	10,426	10,880	*5,000	2,172	*3,000	5,879
Norway	30,622	19,321	22,595	25,919	22,085	5,079	18,400	23,947	33,141
Spain	1,427	1,234	818	879	227	653	1,110	1,065	*1,200
Sweden	1,723	1,206	1,426	3,937	4,104	3,567	3,931	3,188	*3,850
Switzerland	30,864	26,676	26,455	*22,000	*8,000	*5,500	15,400	19,800	20,900
Total Europe (a)	433,038	460,460	501,047	502,229	400,328	129,133	142,378	174,491	229,059
Others (c):									
Taiwan Province, China	9,858	13,452	13,315	11,777	8,807	653	.....	.....	.....
India	.....	.....	.....	1,402	1,899	2,485	3,576	3,553	3,771
Japan	29,154	55,556	83,069	119,062	120,728	18,135	3,519	2,978	7,672
Korea	1,633	3,439	4,813	13,811	14,267	.....	.....	.....	.....
Manchuria (b)	5,540	8,853	9,198	9,432	8,800	.....	.....	.....	.....

(a) Excluding Yugoslavia. (b) Fiscal year beginning April 1. (c) Not included is Russian production and the small output in Brazil beginning in 1945. (d) Practically all by the Toeging works in American Zone.
* Estimated.

Recovery of Secondary Aluminum (short tons)

Source: U. S. Bureau of Mines

Form of Recovery	1942	1943	1944	1945	1946	1947	1948
As Metal	14,104	5,926	2,336	2,145	2,075	5,105	2,384
Aluminum Alloys	178,951	305,357	320,040	293,967	274,068	338,200	282,302
In Brass and Bronze	1,268	1,279	1,466	1,162	597	307	455
In Zinc-Base Alloys	473	219	187	267	504	624	776
In Magnesium Alloys	.....	.....	.....	.....	266	222	354
In Chemical Compounds	1,668	1,180	1,616	846	563	379	506
	196,464	313,961	325,645	298,387	278,073	344,837	286,777

Bauxite Imports into the United States

(long tons)

Source: U. S. Department of Commerce

	Total	Surinam	British Guiana	Indonesia
1943	1,547,854	.....	.....	.....
1944	560,461	518,208	42,253	.....
1945	739,581	713,854	25,727	.....
1946	852,005	802,288	40,595	.....
1947	1,821,580	1,660,823	108,562	52,195
1948	2,448,915	2,051,265	114,784	302,079
1949	2,480,000*	1,900,000*	80,000*	500,000*

* Estimate by THE IRON AGE.

Aluminum Scrap

Dealers' Buying Prices, Cast, New York
(cents per pound)

Source: THE IRON AGE

	1947	1 48	1949
Jan.	7.35	6.15	12.00
Feb.	6.70	6.75	10.28
March	6.50	6.75	8.10
April	6.47	7.05	6.72
May	6.30	8.25	6.25
June	5.63	9.00	5.65
July	5.25	10.65	5.38
Aug.	5.25	11.00	6.25
Sept.	5.25	9.85	7.30
Oct.	5.25	9.88	7.50
Nov.	5.38	11.88	8.00
Dec.	5.75	12.55	7.75*
Average	5.92	9.15	7.60*

* Estimate.

Remelt Aluminum Ingot (No. 12)

(cents per pound, carloads, delivered)

Source: THE IRON AGE

	1947	1948	1949
Jan.	16.47	15.60	25.50
Feb.	16.31	16.31	23.53
March	15.62	16.50	20.25
April	14.88	16.92	17.59
May	14.40	19.00	16.50
June	13.81	19.81	15.04
July	13.25	23.67	14.63
Aug.	13.50	23.75	15.38
Sept.	13.63	23.60	15.75
Oct.	13.75	23.63	15.75
Nov.	14.28	25.84	16.13
Dec.	15.34	26.50	16.50*
Average	14.60	20.93	17.71*

* Estimate.

Aluminum Wrought Products Shipments

(short tons)

Source: U. S. Bureau of the Census

	Total	Plate, Sheet and Strip	Rolled Structurals, Rod, Bar, Wire	Extruded Shapes, Tubing and Blooms	Powder, Flake, Paste
1942	.....	270,200	.....	.....	....
1943	.....	420,500	.....	.....	....
1944	.....	448,900	.....	.....	....
1945	.....	369,300	.....	.....	....
1946	570,425	433,491	65,319	63,039	8,576
1947	704,076	555,580	78,690	61,524	8,283
1948	820,103	634,149	91,496	85,982	8,477
1949	550,000*	370,000*	107,000*	70,000*	7,000*

* Estimated by THE IRON AGE.

Metal Industry Facts

Aluminum, 99 Pct Plus

(cents per pound, freight allowed)

Source: THE IRON AGE

	1929	1933	1934	1936	1937	1938
Jan.	23.90	23.30	23.30	20.50	20.50	20.00
Feb.	23.90	23.30	21.65	20.50	20.50	20.00
March	23.90	23.30	21.65	20.50	20.00	20.00
April	23.90	23.30	21.65	20.50	20.00	20.00
May	23.90	23.30	21.65	20.50	20.00	20.00
June	23.90	23.30	21.65	20.50	20.00	20.00
July	23.90	23.30	21.65	20.50	20.00	20.00
Aug.	23.90	23.30	21.65	20.50	20.00	20.00
Sept.	23.90	23.30	21.65	20.50	20.00	20.00
Oct.	23.90	23.30	21.49	20.50	20.00	20.00
Nov.	23.90	23.30	20.50	20.50	20.00	20.00
Dec.	23.90	23.30	20.50	20.50	20.00	20.00
Average	23.90	23.30	21.58	20.50	20.08	20.00

	1939	1940	1941		1948	1949
Jan.	20.00	20.00	17.00		15.00	17.00
Feb.	20.00	20.00	17.00	1947	15.00	17.00
March	20.00	20.00	17.00	1946	15.00	17.00
April	20.00	19.00	17.00	1945	15.00	17.00
May	20.00	19.00	17.00	1944	15.00	17.00
June	20.00	19.00	17.00	1943	15.00	17.00
				1942		
July	20.00	19.00	17.00	price	16.00	17.00
Aug.	20.00	18.00	17.00	fixed	16.00	17.00
Sept.	20.00	18.00	17.00	at	16.00	17.00
Oct.	20.00	18.00	15.00	15.00	16.70	17.00
Nov.	20.00	17.50	15.00		17.00	17.00
Dec.	20.00	17.00	15.00		17.00	17.00
Average	20.00	18.71	16.50		15.66	17.00

Straits Tin at New York

(cents per pound)

Source: THE IRON AGE

	1929	1936	1937	1938	1939	1940
Jan.	49.21	47.23	50.90	41.54	46.39	48.73
Feb.	49.38	47.94	52.10	41.23	45.64	45.85
March	48.85	48.00	62.74	41.16	46.17	47.07
April	45.93	46.97	59.02	38.41	47.16	46.96
May	43.88	46.31	55.64	36.83	49.00	51.51
June	44.20	42.24	55.88	40.36	48.81	54.64
July	46.29	42.96	59.34	43.38	48.53	51.61
Aug.	46.60	42.57	59.40	43.26	48.80	51.21
Sept.	45.32	44.77	58.64	43.40	Nom.	50.30
Oct.	42.25	44.95	51.52	45.25	55.68	51.50
Nov.	40.18	51.30	43.34	46.29	52.65	50.57
Dec.	39.87	51.85	42.96	46.21	51.40	50.11
Average	45.16	46.42	54.29	42.28	49.11	49.84

	1941		1946	1947	1948	1949
Jan.	50.16		52.00	70.00	94.00	$1.03
Feb.	51.41		52.00	70.00	94.00	$1.03
March	52.07		52.00	70.00	94.00	$1.03
April	52.03	1945	52.00	80.00	94.00	$1.03
May	52.18	1944	52.00	80.00	94.00	$1.03
June	52.68	1943	52.00	80.00	$1.03	$1.03
		1942				
July	53.41	price	52.00	80.00	$1.03	$1.03
Aug.	52.45	fixed	52.00	80.00	$1.03	$1.03
Sept.	52.00	at	52.00	80.00	$1.03	$1.02
Oct.	52.00	52.00	52.00	80.00	$1.03	95.49
Nov.	52.00		61.00	80.00	$1.03	90.11
Dec.	52.00		70.00	85.38	$1.03	*78.80
Average	52.03		54.00	77.95	99.25	*90.79

* Estimate

Aluminum Exports

(short tons)

Source: U. S. Bureau of Mines; U. S. Department of Commerce

	Semi-Finished Products†	Manufactured Products*	Ingots, Slabs Crude	Scrap
1934	102	257	4,026	
1935	310	475	1,681	
1936	328	726	477	
1937	332	1,047	2,360	
1938	1,474	738	4,835	
1939	8,488	1,610	28,121	478
1940	14,659	3,497	12,227	955
1941	6,655	1,178	750	57
1942	20,913	4,979	17,834	32
1943	60,851	7,533	56,741	14
1944	55,019	19,326	133,089	413
1945	3,532	6,512	2,209	802
1946	15,587	5,427	1,107	640
1947	50,235	10,204	12,098	788
1948	47,765	7,199	1,239	438
1949 (1st half)	18,316	3,344	3,583	154

† Plates, sheet, bars, etc.
* Includes only tubes, moldings, foil and leaf, table, kitchen and hospital utensils, powders and pastes up to 1948. In 1949, wire and manufactures, and materials for construction were also included.

Aluminum Imports*

(short tons)

Source: U. S. Bureau of Mines; U. S. Department of Commerce

	Semi-Finished Products†	Metal, Alloys Crude	Scrap
1934	110	9,186	
1935	108	10,538	
1936	202	12,579	
1937	238	22,351	
1938	114	8,756	
1939	306	8,984	5,046
1940	562	17,435	648
1941	528	12,830	55
1942	5,855	106,257	24
1943	76	135,505	241
1944	654	100,315	1,784
1945	1,688	332,437	5,168
1946	1,120	41,487	14,493
1947	31	15,579	15,719
1948	5,912	83,277	71,788
1949 (1st half)	5,766	38,011	28,124

* Imports for consumption.
† Plates, sheets, bars, etc.

WORLD COPPER PRODUCTION (a)

(short tons)

Source: American Bureau of Metal Statistics

Country	1940	1941	1942	1943	1944	1945	1946	1947	1948
United States	892,266	983,103	1,097,175	1,114,149	1,006,653	805,174	603,868	874,105	855,198
Mexico	45,003	56,911	56,907	50,642	47,589	67,784	64,693	72,675	63,928
Canada	327,797	321,658	301,831	287,595	273,535	237,457	183,968	225,861	241,942
Cuba	11,574	8,212	11,023	8,075	6,256	9,053	12,340	14,600	16,800
Newfoundland	8,500	5,500	6,500	6,200	5,500	5,200	4,900	4,250	4,550
Bolivia	7,341	8,018	7,028	6,626	6,800	6,721	6,754	6,879	7,293
Chile	400,180	516,633	533,902	548,013	549,517	518,304	397,972	470,318	490,467
Peru	48,463	40,589	38,935	36,825	35,703	35,181	27,108	24,793	19,917
Ecuador	1,560	3,250	3,000	3,000	4,065	4,216	2,886	158	450
Total America	1,742,684	1,943,874	2,056,301	2,061,125	1,935,618	1,689,090	1,304,489	1,693,639	1,700,545
Austria	22	816	1,082	1,505	1,653	353	138	285	1,082
Finland	16,806	18,213	17,221	17,073	17,462	16,510	19,400	19,200	25,713
Germany	26,162	25,059	25,240	25,766	23,148	...	(e)516	(e)263	(e)401
Italy	3,700	4,000	4,500	(b)2,800	400	2,400	...	...	...
Norway	17,118	19,828	17,054	17,900	15,900	5,735	13,500	16,212	15,800
Spain	14,300	10,200	11,800	12,200	12,100	9,100	13,400	11,900	...
Sweden	10,461	14,760	19,903	19,656	17,770	16,453	16,934	14,489	18,000
Yugoslavia	47,346	25,400	35,300	29,800	25,000	...	...	...	...
Total Europe	135,915	118,276	132,100	126,700	113,433	50,551(f)	83,488(f)	82,349(f)	80,996(f)
Formosa	6,876	6,196	5,585	6,636	4,393	...	...	...	...
Japan	81,495	84,921	91,561	104,419	95,728	30,847	18,889	24,127	28,353
India (c)	11,500	6,741	6,579	6,832	6,418	6,720	7,068	6,643	6,567
Turkey	9,661	11,585	9,103	10,725	12,076	10,800	10,979	11,111	12,102
Philippines	10,080	7,800	(d)	(d)	(d)	(d)	...	...	2,300
Cyprus	10,500	...	...	5,706	1,695	1,100	2,950	17,400	21,500
Total Asia	130,112	117,243	112,828	134,318	120,310	49,467(f)	39,896(f)	59,281(f)	70,822(f)
Belgian Congo	164,054	178,757	182,916	172,898	182,413	176,600	158,604	166,271	171,387
Rhodesia	291,534	258,417	279,859	276,955	245,498	215,572	204,922	218,222	234,847
Southwest Africa	...	...	...	...	...	...	...	4,575	6,616
Union of South Africa	18,800	22,200	28,200	25,100	25,935	27,211	30,000	32,400	32,300
Total Africa	474,388	459,374	490,975	474,951	454,846	419,383	393,526	421,468	444,950
Australia	22,000	23,000	22,500	27,300	31,500	27,500	19,886	14,698	14,000
Total World, as Reported	2,505,099	2,661,767	2,814,704	2,824,394	2,655,707	2,227,991f	1,841,275f	2,271,435f	2,311,313f

(a) Production from ore, excluding copper derived from junk. Russia omitted. (b) January-June. (c) Including Burma through 1940. (d) Production of ores and concentrates (copper content) in Philippines during 1942-45 has been reported as about 14,500 short tons. (e) The production of Germany beginning 1946 is that of the British zone. Production in the Russian zone, in which are situated the Mansfeld mines, has been given as 19,600 short tons in 1946, and 9,500 tons in January-June, 1947. (f) Total based on incomplete returns.

In this table, which surveys mine production, the credits to the several countries are for copper smelted domestically plus copper in ores from them smelted in other countries; or copper content of ores and concentrates produced in countries which do no smelting.

WEEKLY PRICE QUOTATIONS

Current quotations on commodities listed in this section are published every week in the Price Section of The Iron Age.

Prime Western Zinc at New York

(cents per pound)

Source: THE IRON AGE

	1929	1936	1937	1938	1939	1940
Jan.	6.70	5.22	6.20	5.35	4.89	6.03
Feb.	6.70	5.23	6.80	5.17	4.89	5.93
Mar.	6.80	5.27	7.75	4.77	4.89	6.14
Apr.	7.04	5.27	7.70	4.53	4.89	6.14
May	6.98	5.27	7.10	4.43	4.89	6.20
June	7.00	5.26	7.10	4.53	4.89	6.63
July	7.10	5.16	7.27	5.14	4.91	6.64
Aug.	7.15	5.17	7.56	5.14	5.11	6.79
Sept.	7.15	5.22	7.54	5.24	6.51	7.33
Oct.	7.09	5.22	6.45	5.40	6.89	7.64
Nov.	6.63	5.35	5.98	5.12	6.89	7.64
Dec.	6.09	5.64	5.36	4.89	6.46	7.65
Average	6.87	5.27	6.90	4.98	5.51	6.73

	1941		1946	1947	1948	1949
Jan.	7.65		8.65	11.005	11.69	18.18
Feb.	7.65		8.65	11.005	12.61	18.20
Mar.	7.65		8.65	11.005	12.61	17.76
Apr.	7.65	1945	8.65	11.005	12.61	14.76
May	7.65	1944	8.65	11.005	12.64	12.58
June	7.65	1943	8.65	11.005	12.65	10.27
July	7.65	1942 price	8.69	11.005	13.09	10.06
Aug.	7.65	fixed	8.69	11.005	15.65	10.70
Sept.	7.65	at	8.69	11.005	15.65	10.77
Oct.	8.36	8.65	9.28	11.03	15.74	10.04
Nov.	8.65		10.86	11.06	17.27	10.46
Dec.	8.65		10.94	11.06	16.15	10.47
Average	7.88		9.09	11.02	14.20	12.85

Molybdenum Ore and Concentrates Production in U. S.

(short tons of contained molybdenum)

Source: U. S. Bureau of Mines

1926	697	1938	16,648
1927	1,150	1939	15,162
1928	1,714	1940	17,157
1929	2,011	1941	20,182
1930	1,882	1942	28,471
1931	1,567	1943	30,834
1932	1,216	1944	19,340
1933	2,841	1945	15,401
1934	4,681	1946	9,109
1935	5,756	1947	13,524
1936	8,593	1948	13,353
1937	14,710	1949	11,000*

*Estimate

RECOVERY OF SECONDARY MAGNESIUM

(short tons)

Source: U. S. Bureau of Mines

Form of Recovery	1942	1943	1944	1945	1946	1947	1948
Magnesium-Alloy Ingot[1] (Gross Weight)	6,045	11,009	13,379	7,359	2,506	5,138	4,604
Magnesium-Alloy Castings (Gross Weight)	93	327	235	486	1,145	1,377	1,301
Magnesium-Alloy Shapes	.....	.....	.....	864	136	85	1
In Aluminum Alloys	46	34	23	274	1,218	1,883	1,388
In Zinc Alloys	1	1	5	3	4	3	6
In Other Alloys	2	.....	2	10	2	.....	.....
Chemical and Incendiary Uses	51	33	541	241	106	199	84
Cathodic Protection	.....	.....	.....	.....	.....	818	450
	6,238	11,404	14,185	9,247	5,117	9,503	7,834

Electrolytic Copper, Conn. Valley

(cents per pound)

Source: THE IRON AGE

	1929	1934	1936	1937	1938	1939
Jan.	16.84	8.18	9.25	12.66	10.42	11.25
Feb.	18.05	8.00	9.25	13.60	10.00	11.25
March	21.38	8.00	9.25	15.99	10.00	11.25
April	19.93	8.39	9.40	15.35	10.00	10.47
May	18.00	8.50	9.50	14.00	9.60	10.06
June	18.00	8.82	9.50	14.00	9.00	10.00
July	18.00	9.00	9.60	14.00	9.81	10.22
Aug.	18.00	9.00	9.75	14.00	10.12	10.49
Sept.	18.03	9.00	9.75	13.78	10.25	11.93
Oct.	18.00	9.00	9.85	12.06	10.98	12.44
Nov.	18.00	9.00	10.43	11.02	11.25	12.50
Dec.	18.00	9.00	11.00	10.24	11.25	12.50
Average	18.35	8.66	9.71	13.39	10.22	11.20

	1940		1946	1947	1948	1949
Jan.	12.22		12.00	19.56	21.50	23.50
Feb.	11.40		12.00	19.75	21.50	23.50
March	11.38	1945	12.00	21.50	21.50	23.49
April	11.33	1944	12.00	21.50	21.50	21.72
May	11.32	1943	12.00	22.63	21.50	18.05
June	11.37	1942	14.28	21.63	21.50	16.66
July	10.81	1941 price	14.375	21.50	21.50	17.33
Aug.	10.95	fixed	14.375	21.50	23.43	17.63
Sept.	11.54	at	14.375	21.50	23.50	17.63
Oct.	12.00	12.00	14.375	21.50	23.50	17.63
Nov.	12.00		17.19	21.50	23.50	18.42
Dec.	12.00		19.50	21.50	23.50	18.50
Average	11.53		14.04	21.30	22.33	19.51

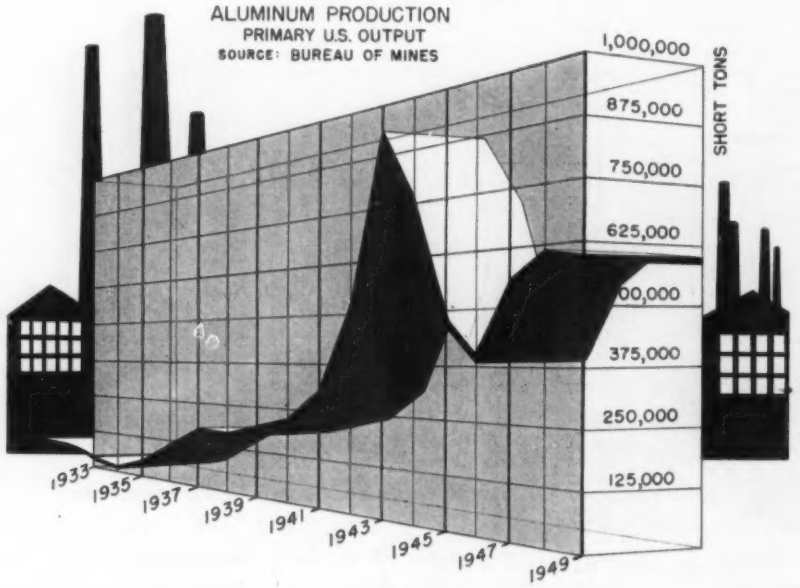
Common Lead at New York

(cents per pound)

Source: THE IRON AGE

	1929	1936	1937	1938	1939	1940
Jan.	6.65	4.50	6.00	4.87	4.83	5.47
Feb.	6.85	4.51	6.23	4.83	4.80	5.08
Mar.	7.41	4.60	7.19	4.50	4.82	5.19
Apr.	7.19	4.60	6.32	4.50	4.78	5.07
May	7.00	4.60	6.00	4.40	4.75	5.02
June	7.00	4.60	6.00	4.15	4.80	5.00
July	6.80	4.60	6.00	4.88	4.85	5.00
Aug.	6.75	4.60	6.45	4.90	5.04	4.85
Sept.	6.88	4.60	6.40	5.00	5.45	4.93
Oct.	6.87	4.63	5.75	5.10	5.50	5.31
Nov.	6.29	5.11	5.03	5.09	5.50	5.73
Dec.	6.25	5.55	4.87	4.84	5.50	5.50
Average	6.83	4.71	6.02	4.74	5.05	5.18

	1941		1946	1947	1948	1949
Jan.	5.50		6.50	13.00	15.00	21.50
Feb.	5.60		6.50	13.25	15.00	21.50
Mar.	5.77		6.50	15.00	15.00	18.96
Apr.	5.85	1945	6.50	15.00	17.21	15.15
May	5.85	1944	6.50	15.00	17.50	13.72
June	5.85	1943	8.18	15.00	17.50	12.00
July	5.85	1942 price	9.18	15.00	17.80	13.56
Aug.	5.85	fixed	8.25	15.00	19.50	14.99
Sept.	5.85	at	8.25	15.00	19.50	15.08
Oct.	5.85	6.50	8.25	15.00	19.50	13.42
Nov.	5.85		10.41	15.00	21.50	12.52
Dec.	5.85		12.20	15.00	21.50	12.00
Average	5.79		8.10	14.69	18.04	15.37



Nickel Produced in the United States

(short tons)

Source: U. S. Bureau of Mines

	Primary	Secondary Recovery
1930	308	2,900
1931	373	2,070
1932	195	1,450
1933	126	1,650
1934	157	1,850
1935	160	1,950
1936	107	1,965
1937	219	2,400
1938	416	2,300
1939	394	2,920
1940	554	4,152
1941	660	5,315
1942	612	4,142
1943	642	6,917
1944	988	4,321
1945	1,155	6,483
1946	352	8,248
1947	646	9,541
1948	883	8,850

RECOVERY OF SECONDARY LEAD

(short tons)

Source: U. S. Bureau of Mines

Form of Recovery	1942	1943	1944	1945	1946	1947	1948
As Metal:							
At Primary Plants	12,856	21,634	11,368	18,525	8,013	15,662	4,952
At Other Plants	55,746	36,688	43,678	42,598	65,691	95,843	126,951
	68,602	58,322	55,046	61,123	73,704	111,505	131,903
In Antimonial Lead[1]	170,559	176,076	180,818	194,079	193,684	265,935	243,552
In Other Lead Alloys	58,834	76,474	68,271	77,051	94,653	103,799	102,603
In Copper-Base Alloys	24,518	28,625	26,667	30,346	30,101	30,137	21,449
In Tin-Base Alloys	488	1,746	614	440	645	594	514
	323,001	341,243	331,416	363,039	392,787	511,970	500,071

[1]Includes lead recovered in secondary antimonial lead at primary plants.

Brass Scrap

Dealers' Buying Prices for No. 1 Composition, New York

(cents per pound)

Source: THE IRON AGE

	1947	1948	1949
Jan.	14.45	12.45	14.19
Feb.	14.22	12.44	13.06
March	14.37	13.33	11.83
April	14.43	12.85	9.19
May	13.20	12.88	8.56
June	11.50	12.75	8.13
July	10.75	13.75	8.69
Aug.	10.75	14.28	8.86
Sept.	10.75	13.57	9.23
Oct.	10.85	14.41	9.13
Nov.	11.38	15.19	11.06
Dec.	12.00	14.95	10.73
Average	12.39	13.57	10.22

Metal Industry Facts

Nonferrous metals

U. S. Production of Cadmium (Contained Cd, in short tons)

Source: U. S. Bureau of Mines

	Metallic Cadmium	Compounds	Secondary Recovery
1930	1,389	158	...
1931	525	189	...
1932	400	130	...
1933	1,138	201	...
1934	1,389	283	...
1935	1,739	254	...
1936	1,817	313	...
1937	2,133	414	...
1938	2,039	216	...
1939	2,206	340	...
1940	2,961	423	114
1941	3,469	148	190
1942	3,662	24	158
1943	4,198	35	31
1944	4,227	163	53
1945	3,966	226	36
1946	3,100	135	178
1947	4,004	250	52
1948	3,750†	...	...

† American Bureau of Metal Statistics.

Shipments of Ingot Brass and Bronze

(short tons)

Source: Ingot Brass & Bronze Industry

	1946	1947	1948	1949
Jan.	29,196	27,841	26,998	19,456
Feb.	24,580	24,686	22,497	15,026
Mar.	27,176	27,477	24,282	14,550
Apr.	30,228	24,577	25,177	10,695
May	27,333	19,525	23,716	11,114
June	31,349	16,929	24,401	9,696
July	26,677	16,728	20,456	10,220
Aug.	27,896	18,589	24,098	14,194
Sept.	27,390	19,025	23,641	16,208
Oct.	31,461	22,806	21,559	18,036
Nov.	29,232	21,665	21,731	18,488
Dec.	27,206	23,882	20,954	*18,000
	339,724	283,711	279,500	*175 500

* Estimate.

Magnesium, 99.8 Pct Plus

(cents per pound, freight allowed; f. o. b. Freeport, Tex., since Dec. 1, 1947)

Source: THE IRON AGE

1929	56.00	1935	30.00	1941	27.00
1930	48.00	1936	30.00	1942	22.50
1931	34.00	1937	30.00	1943	
1932	29.00	1938	30.00	through	
1933	28.00	1939	27.00	1948	
1934	26.00	1940	27.00	20.50	

WEEKLY PRICE QUOTATIONS

Current quotations on commodities listed in this section are published every week in the Price Section of The Iron Age.

COBALT CONSUMPTION

U. S. Consumption, Cobalt Contents, Short Tons

Source: Bureau of Mines

	1946	1947	1948	1949*
Metallic:				
High-Speed Steel	224,049	223,148	289,391	234,844
Magnet Steel	†1,463,539	121,223	165,698	42,735
Permanent Magnet Alloys		894,924	1,186,673	691,015
Other Steel	201,949	386,354	503,082	413,506
Cast Cobalt-Chromium-Tungsten-Type Alloys	526,504	642,452	826,329	759,923
Alloy Hard-Facing Rods and Materials	53,874	71,545	118,313	61,475
Cemented Carbides	†45,100	62,734	115,687	121,614
Other	81,988	99,476	115,255	83,736
Total Metallic	2,597,003	2,501,856	3,318,428	2,408,848*
Nonmetallic (Exclusive of Salts and Driers):				
Ground-Coat Frit	412,766	607,316	613,745	306,180
Pigments	170,662	207,928	232,725	117,648
Other	39,596	51,439	66,699	59,514
Total Nonmetallic	623,024	866,683	913,169	483,342*
Salts and Driers: Lacquers, Varnishes, Paints, Inks, Pigments, Enamels, Glazes, Feed, Electroplating, etc. (Estimate)	885,000	797,000	818,000	569,000
Grand Total	4,105,027	4,165,539	5,049,597	3,461,190*

†Revised figure
*Nine months.

Brass Ingots 85-5-5-5 (115)

(cents per pound, carloads, delivered)

Source: THE IRON AGE

	1947	1948	1949
Jan.	20.50	19.60	20.38
Feb.	20.50	19.31	19.01
Mar.	21.25	18.95	17.98
Apr.	21.50	19.22	16.94
May	20.30	19.19	15.07
June	19.13	19.12	13.96
July	18.20	19.75	13.76
Aug.	19.00	21.06	14.13
Sept.	18.38	21.30	14.91
Oct.	17.75	20.94	15.13
Nov.	17.75	21.65	16.81
Dec.	18.31	21.21	16.85
Average	19.38	20.11	16.24

Bronze Ingots 88-10-2 (245)

(cents per pound, carloads, delivered)

Source: THE IRON AGE

	1947	1948	1949
Jan.	21.75	23.25	24.13
Feb.	21.75	22.13	23.26
March	23.06	21.42	21.61
April	23.69	21.95	20.26
May	22.55	22.25	17.82
June	21.38	23.00	16.71
July	20.55	23.25	16.51
Aug.	21.25	24.38	16.76
Sept.	20.50	24.80	17.41
Oct.	19.75	24.38	17.63
Nov.	19.75	25.57	18.81
Dec.	21.88	25.16	18.35
Average	21.49	23.46	19.11

Addresses and Officers of Associations and Societies

Aluminum Assn.
420 Lexington Ave., New York 17
Pres. — R. S. Reynolds, Jr.
Sec.-Treas. — Donald M. White

Aluminum Research Institute
20 North Wacker Drive, Chicago 6
Pres. — Louis Lippa
Exec. Sec. — Carl H. Burton

Aluminum Wares Assn.
2311 First National Bank Bldg., Pittsburgh
Pres. — J. R. Brown
Exec. Sec. — S. J. Swensson

Aluminum Window Manufacturers Assn.
209 Cedar Ave., Tacoma Park, Washington 12, D. C.
Pres. — Wilson Smith
Exec. Sec. — O. J. Condon

American Bureau of Metal Statistics
50 Broadway, New York 4
Chair, Exec. Comm. — Kenneth C. Brownell
Dir. — R. R. Eckert

American Mining Congress
1102 Ring Bldg., Washington 6
Pres. — Howard I. Young
Exec. Sec. — Julian D. Conover

American Tin Trade Assn., Inc.
75 West St., New York 6
Pres. — James E. Pope
Vice Pres. — Walter D Long

American Zinc Institute
60 East 42nd St., New York 17
Pres. — Edward H. Snyder
Exec. Vice Pres. — Ernest V. Gent

Colorado Mining Assn.
204 State Office Bldg., Denver, Colo.
Pres. — John Hamm
Exec. Dir. — Robert S. Palmer

Copper & Brass Research Assn.
420 Lexington Ave., New York 17
Pres. — William M. Goss
Mgr. — T. E. Veltfort
Sec. — B. B. Caddle

Copper Institute
50 Broadway, New York 4
Pres. — C. F. Kelley
Sec.-Treas. — R. R. Eckert

Ingot Brass and Bronze Industry
308 W. Washington St., Chicago 6
Pres. — Leo Halpern
Sec. — I. Glueck

Institute of Metals Div., AIME
29 West 39th St., New York 18
Chair. — Frederick N. Rhines
Sec. — E. O. Kirkendall

International Tin Study Group
7, Carel van Bylandtlaan, The Hague, Netherlands
Sec. — W. Fox

Lead Industries Assn.
420 Lexington Ave., New York 17
Pres. — Felix Wormser
Sec.-Treas. — Robert L. Ziegfeld

Magnesium Assn.
122 East 42nd St., New York 17
Pres. — A. W. Winston

Montana Mining Assn.
505 Montana Standard Bldg., Butte, Mont.
Sec. — Carl Trauerman

National Assn. of Waste Material Dealers, Inc.
1475 Broadway, New York 18
Pres. — James T. Flannery
Exec. Sec. — Clinton M. White

Tin Research Institute, Inc.
492 West Sixth Ave., Columbus 1, Ohio
Met. Development: — R. J. Nekervis
Chem. Development: — R. M. MacIntosh

Tri-State Zinc and Lead Ore Producers Assn.
P. O. Box 879, Miami, Okla.
Sec. — C. E. Stover

United States Copper Assn.
50 Broadway, New York 4
Vice Pres. — Louis Cates
Sec.-Treas. — R. R. Eckert

Utah Mining Assn.
Salt Lake City, Utah
Mgr. — James K. Richardson

CADMIUM IMPORTS BY U. S.

for Consumption

Source: U. S. Dept. of Commerce

Metallic Cadmium (pounds)	1947	1946	1945	1944	1943	1942	1941	1940
Belgian Congo	.....	6,700	25,798	53,082	40,355	53,298	.....	.....
Belgium and Luxembourg	2,000	2,240	.....	.....	.....	.....	.....	27,491
Canada	14,612	3,568	672	.....	.....	.....	136,280	.....
Italy	.....	.....	.....	8,656	.....	.....	.....	.....
Peru	3,658	4,907	2,254	4,889	8,536	.....	.....	.....
Switzerland	2	.....	.....	.....	.....	.....	.....	.....
United Kingdom	20	.....	.....	.....	.....	.....	11,098	.....
Total	20,292	17,415	28,724	66,627	48,891	53,298	147,378	27,491
Flue Dust (Cd content, thousands of pounds)								
Mexico	2,356	1,609	2,193	1,689	1,643	(1)	(1)	(1)
Netherlands	.....	44	.....	.....	.....	(1)	(1)	(1)
Total Metallic Cadmium and Flue Dust (thousands of pounds)	2,376	1,670	2,221	1,756	1,692	(1)	(1)	(1)

[1] Data not published.

Nickel Consumption† in the United States

(short tons)

Source: U. S. Bureau of Mines

	1948	1947	1946	1945
Stainless steel	16,244	15,350	17,993	55,557
Alloy steel	21,782	17,379	15,597	
Cast iron	4,218	3,953	2,987	3,013
Nonferrous alloys*	28,034	27,378	25,910	26,401
High temperature and resistance alloys	6,168	5,130	6,798	3,951
Anodes	14,213	8,988	8,530	6,388
Plating salts	609	664	771	
Catalysts	595	439	272	445
Ceramics	185	193	194	22
Other	1,457	1,347	1,053	495
Total	93,558	80,757	80,105	96,252

† Does not include scrap recovery.
* Includes copper-nickel alloys, nickel silver, brass, bronze, beryllium, magnesium and aluminum alloys; and Monel, Inconel and malleable nickel.

Antimony Ore and Concentrate Production in U. S.

(short tons)

Source: U. S. Bureau of Mines

	Antimony Content	Average % Sb
1932	419	46.6
1933	587	51.8
1934	404	45.0
1935	859	15.5
1936	755	19.5
1937	1,266	29.8
1938	650	23.8
1939	393	12.4
1940	494	44.0
1941	1,214	35.1
1942	2,944	42.2
1943	5,556	33.1
1944	4,735	35.1
1945	1,930	12.9
1946	2,505	17.9
1947	5,316	26.6
1948	6,489	40.0

WORLD MERCURY PRODUCTION

Number of 76-lb. Flasks

Source: U. S. Bureau of Mines

Country[1]	1941	1942	1943	1944	1945	1946	1947	1948
Algeria	147	121	146	165	326	340	348	377
Canada	7,057	13,630	22,240	9,682	.....	.....	.....	.....
Chile	1,305	2,256	2,563	1,181	862	827	445	359
China	2,756	4,293	3,133	3,510	1,828	1,189	290	290
Czechoslovakia	(2)	(2)	(2)	(2)	(2)	(2)	788	800
Germany	699	493	3,480	3,480	(2)	.....	(2)	(2)
Italy	94,161	75,921	58,004	28,704	25,410	50,822	53,984	39,000
Japan	4,323	5,197	6,706	7,096	3,139	1,361	1,619	1,528
Mexico	23,137	32,443	28,321	26,063	16,443	11,681	9,700	4,786
Peru	.....	145	326	152	209	5	.....	.....
Spain	66,473	72,288	47,756	34,349	40,694	41,801	55,608	(2)
Turkey	354	271	186	97	158	.....	98	(2)
Union of South Africa	204	579	1,189	1,192	852	764	.....	.....
United States	44,921	50,846	51,929	37,688	30,763	25,348	23,244	14,388
Total	275,000	265,000	236,000	163,000	131,000	144,000	164,000	120,000

[1] Mercury is also produced in Korea (Chosen) and U. S. S. R., but production data are not available; estimates included in the total. Totals include output or estimates for minor producing nations, including Australia, Austria, Bolivia, New Zealand, Rumania, Southern Rhodesia, Sweden, Tunisia and Yugoslavia.
[2] Data not yet available; estimates included in the total.

Metal Industry Facts

Nonferrous metals

PRIMARY MAGNESIUM USE

By Products (short tons)

Source: Bureau of Mines

Product	1947	1948
Structural products:		
Castings:		
Sand	892	1,930
Die	182	213
Permanent mold	9	12
Sheet	1,053	1,122
Structural shapes, rods, tubing (extrusions)	1,619	2,529
Forgings	105	103
Total structural	3,860	5,909
Other products:		
Powder	9	
Aluminum alloys	1,935	2,324
Other alloys	40	43
Scavenger and deoxidizer	427	418
Chemical	266	407
Cathodic protection	94	367
Other[1]	238	193
Total other products	2,943	3,752
Grand Total	7,008	9,661

[1] Includes primary metal consumed in making secondary alloy.

PRODUCTION AND CONSUMPTION OF MAGNESIUM

Including Secondary (Millions of lb.)

Source: Estimated by Magnesium Assn.

	1948	1949
Primary ingot produced	20	23
Primary ingot sold and used by producer		
For magnesium alloys	9	16
For aluminum alloys and other non-magnesium use	8	8
Total sold and used	17	24
Magnesium cast and wrought products shipped	14	21
Metals required for cast and wrought products	17	24
Secondary magnesium		
Used in magnesium alloys	8	8
Used in aluminum and non-magnesium industries	5	5
Total secondary used	13	13
Total consumption of primary and secondary	30	37

PRODUCTION OF PRIMARY MAGNESIUM[1]

thousands of pounds

Source: Bureau of Mines

	1946	1947	1948
Jan.	195	2,797	1,786
Feb.	97	2,463	1,660
March	19	2,943	1,774
April		2,306	1,602
May		1,851	1,594
June	457	1,696	1,532
July	1,345	1,811	1,584
Aug.	1,739	1,698	1,618
Sept.	1,934	1,772	1,638
Oct.	1,962	1,825	1,746
Nov.	1,078	1,740	1,628
Dec.	1,551	1,786	1,864
Total	10,534	24,688	20,006

Estimate of 23 million lb production in 1949 made by Magnesium Assn.

[1] Producers' reports to WPB, January 1942–August 1945, thereafter to Bureau of Mines.

WORLD MAGNESIUM PRODUCTION

(metric tons)

Source: U. S. Bureau of Mines

Country[1]	1940	1941	1942	1943	1944	1945	1946	1947	1948
Canada		5	367	3,245	4,799	3,338	145	136	.....
France	2,562	1,989	1,334	1,542	703	279	707	800	650
Germany	17,720	24,000	30,000	32,400	33,600	[2]4,225	.....	.....	17
Italy	438	1,857	2,379	[3]2,000	[3]3,000	[3]400	[3]1,000	[3]800	.....
Japan	2,720	2,575	2,020	2,777	2,904	1,020	.....	.....	.....
Korea	260	263	240	832	1,628	1,014	.....	.....	.....
Norway[3]	.....	100	2,000	2,000	2,000	.....	.....	.....	.....
Switzerland[3]	700	700	1,500	1,500	1,000	500	300	[3]500	.....
U. S. S. R.[3]	1,500	4,000	5,000	5,000	5,000	2,170	3,000	4,000	5,000
United Kingdom	[4]6,200	9,380	14,865	19,096	13,094	[4]6,900	[4]1,700	[4]2,500	3,500
United States	5,680	14,782	44,418	186,544	142,518	29,748	4,823	11,198	9,075
Total	37,785	59,825	104,876	237,760	211,182	49,815	11,675	19,734	19,000

[1] Production or estimates for minor producing nations included in totals: Australia, Formosa and Manchuria.
[2] January-February only. Planned production for March, 2,830 tons.
[3] Estimated by Bureau of Mines.
[4] Includes secondary.

NICKEL IMPORTED BY U. S.

for Consumption (short tons)

Source: U. S. Bureau of Mines

	Ore and Matte	Pigs, Ingots, Shot, Bars, Rods, Tubes, etc.	Oxide	Nickel Silver	Gross Weight	Nickel Content*
1926	7,318	14,704	743	3	22,768	19,300
1927	5,372	14,610	507	8	20,497	17,900
1928	9,295	24,559	872	13	34,738	30,300
1929	14,491	32,355	1,638	7	48,486	41,500
1930	10,297	19,162	677	8	30,143	25,300
1931	5,815	11,817	152	5	17,789	15,100
1932	2,959	7,512	344	1	10,816	9,400
1933	9,610	15,811	1,010	.....	26,430	21,900
1934	5,923	22,900	475	.....	29,298	21,000
1935	7,962	29,429	456	.....	37,848	34,200
1936	11,597	40,269	1,275	.....	53,141	47,600
1937	12,543	40,615	1,022	.....	54,180	47,884
1938	7,290	21,978	278	.....	29,546	26,200
1939	14,217	49,763	816	.....	64,795	58,200
1940	17,445	70,530	4,493	.....	92,468	83,760
1941	39,946	74,993	9,189	1	124,130	106,182
1942	40,189	80,788	11,977	.....	132,954	114,278
1943	43,486	92,579	5,184	.....	141,249	122,492
1944	36,414	93,053	5,465	.....	134,932	118,293
1945	25,039	78,402	19,087	.....	122,528	107,433
1946	19,046	71,163	14,521	5	104,734	92,509
1947	14,636	58,687	15,074	11	88,408	80,718
1948	13,854	71,587	21,514	4	106,939	96,889

* Estimate by Bureau of Mines.

WORLD NICKEL PRODUCTION

Nickel Content of Ore, Metric Tons

Source: U. S. Bureau of Mines

Country	1940	1941	1942	1943	1944	1945	1946	1947	1948
Burma	745	[2] 471	.....	.....	.....	.....	.....	.....	(1)
Canada	111,383	128,029	129,369	130,642	124,555	111,189	87,146	107,515	118,909
Cuba	.....	.....	(1)	2,430	4,679	10,900	11,241	2,014	.....
Finland	(1)	97	1,630	8,970	313	900	822	(1)	(1)
Germany	729	674	577	951	(1)	(1)	.....	.....	.....
Greece	575	185	706	495	.....	.....	.....	.....	.....
Indonesia	2,222	[3] 1,200	[3] 1,200	[3] 1,200	(1)	(1)	.....	.....	.....
Japan	825	2,311	1,252	1,613	1,720	650	.....	.....	.....
New Caledonia	10,535	10,395	9,415	7,374	8,115	4,328	2,779	3,345	4,882
Norway	1,007	907	911	577	529	516	55	.....	.....
Sweden	.....	101	377	702	698	390	.....	.....	(1)
South Africa	416	581	449	343	481	499	497	529	458
U. S. S. R.[3]	8,650	13,600	(1)	11,160	(1)	13,400	20,000	25,000	25,000
United States[4]	503	599	555	582	896	1,048	319	586	801
Total (estimate)	140,000	162,000	158,000	167,000	157,000	145,000	123,000	139,000	150,000

Minor producing nations include Brazil, Italy and French Morocco.
[1] Data not available; estimate included in total.
[2] Data cover 9 months ended Mar. 31, 1942.
[3] Estimate.
[4] Byproduct in electrolytic refining of copper. In 1941 includes also production from ore and as byproduct of talc; in 1944 and 1945 includes also production from ore.

Continued

WORLD ANTIMONY PRODUCTION

Metric Tons

Source: U. S. Bureau of Mines

Country	1941	1942	1943	1944	1945	1946	1947	1948
Canada	1,329	1,269	465	809	896	286	480	124
Mexico[2]	10,241	10,759	12,585	10,056	8,053	6,046	8,371	6,790
United States	1,013	2,457	4,638	3,952	1,611	2,091	4,437	5,416
Bolivia (exports)	13,680	16,231	16,536	6,852	5,093	6,407	9,989	11,280
Peru	1,440	1,457	2,472	932	2,041	969	1,140	1,770
Austria	26	391	571	658	132	15	82	247
Czechoslovakia	1,645	[3] 3,130	([4])	([4])	1,115	2,156	1,434	1,593
France	.....	128	153	116	153	202	200	([4])
Hungary[5]	3,000	2,200	1,500	[5][6]1,160	([6])	.....	.....	([4])
Italy	819	667	522	403	348	330	450	430
Spain	101	210	176	126	108	96	84	[7] 270
Burma[3]	400	843	843	843	([4])	([4])	66	([4])
China	[8] 7,989	[8] 3,510	[8] 505	[8] 203	.....	426	1,909	3,251
Japan	250	350	600	450	210	49	100	124
Turkey (Asia Minor)	80	40	8	58	33	36	103	520
Algeria	397	304	902	170	423	.....	110	817
Morocco:								
French	184	322	409	166	353	260	390	411
Spanish	85	144	153	72	52	103	128	([9])
Southern Rhodesia	83	169	164	116	29	15	38	10
Union of South Africa	445	990	1,560	2,570	2,250	2,330	3,020	3,700
Australia	1,052	1,042	532	454	172	480	162	39
Total (except U. S. S. R.)	49,000	51,400	53,200	38,400	26,900	25,400	34,800	41,300

[1] Approximate recoverable metal content of ore produced, exclusive of antimonial lead ores; 92 pct of reported gross content is used as basis for calculations in nearly every instance. U. S. S. R. and Yugoslavia produce antimony but data on production are not available; an estimate for Yugoslavia is included in the total. Minor producing nations include Honduras, Argentina, Portugal, Indochina, Iran, Pakistan, Siam and New Zealand.
[2] Includes antimony content of antimonial lead.
[3] Estimate.
[4] Data not available; estimate included in total.
[5] January to June inclusive.
[6] Data represent Trianon Hungary after October 1944.
[7] Includes Spanish Morocco.
[8] Data represent area designated as Free China during the period of Japanese occupation.
[9] Included under Spain.

ZINC IMPORTS FOR CONSUMPTION

(short tons)

Source: Bureau of Mines, Department of Commerce, and American Bureau of Metal Statistics

	Ores (Zn content)	Blocks, Pigs, Slabs	Old Dross, Skimmings
1929	.....	226	.....
1930	.....	281	35
1931	.....	274	.....
1932	.....	310	.....
1933	2,133*	1,890	.....
1934	14,277*	1,725	.....
1935	10,520*	4,444	29
1936	172*	11,660	16
1937	8,812*	37,208	678
1938	4,860	7,230	96
1939	33,503	30,960	203
1940	44,637	10,146	520
1941	154,520	40,288	456
1942	283,167	36,352	3,367
1943	516,646	58,155	5,146
1944	415,004	63,626	5,603
1945	330,397	96,710	7,331
1946	166,885	104,015	4,137
1947	194,822	72,083	5,105
1948	133,814	92,547	10,273
1949†	201,334	94,741	3,536

* Includes entries under bond.
† Ten months.

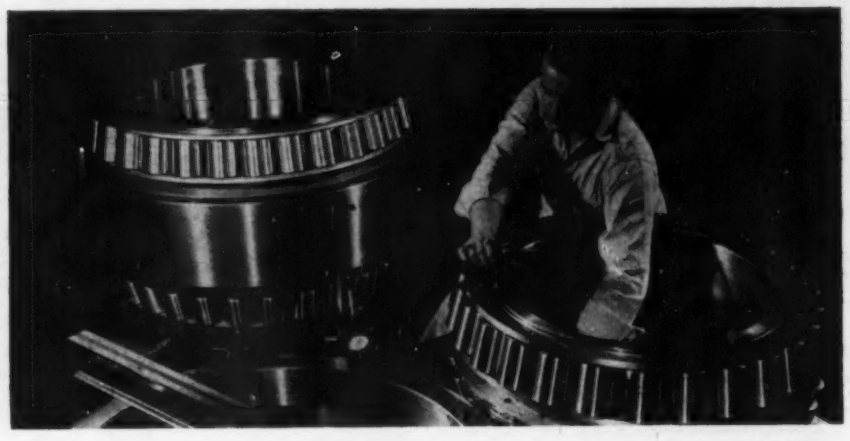
Farm Tractor Output

Farm Tractor Production—Domestic only*

Source—Depts. of Commerce and Agriculture.

	Wheel Type		Track Type	Total All Farm
	Conventional	All Purpose		
1929	195,980	.....	27,101	223,081
1931	38,109	25,831	7,089	69,029
1935	31,741	106,343	18,774	156,858
1936	39,068	154,879	27,299	221,246
1937	53,882	183,955	34,602	272,439
1938	41,377	131,060	16,837	189,274
1939	26,973	158,585	20,127	208,685
1940	25,163	224,271	24,762	274,196
1941	32,724	280,708	28,661	342,093
1942	21,135	150,988	29,578	201,701
1943	16,570	88,678	29,453	134,701
1944	43,228	205,903	44,860	293,991
1945	46,670	197,760	44,872	289,302
1946	37,393	220,881	25,902	284,176
1947	47,495	366,288	11,630	425,413
1948	68,280	442,041	14,153	524,474

*Does not include tractors for nonfarm use.
**Not included in farm total.



ANTIMONY IMPORTS* BY U. S.

(short tons)

Source: U. S. Dept. of Commerce

	1948		1947		1946		1945	
	Ore Content	Metal	Ore Content	Metal	Ore Content	Metal	Ore Content	Metal
Belgium and Luxembourg	.....	210	.....	56	.....	.....	.....	.....
Bolivia†	3,310	.....	2,435	.....	758	.....	11,348	.....
Canada	31	1	145	.....	.....	.....	.....	.....
Chile†	260	.....	348	.....	39	.....	1,564	.....
China	.....	2,986	.....	5,815	.....	1,720	.....	571
French Morocco	95	.....	.....	.....	.....	.....	.....	.....
Honduras	6	.....	.....	.....	8	.....	17	.....
Italy	.....	30	.....	.....	.....	.....	.....	.....
Japan	.....	.....	.....	.....	.....	873	.....	.....
Mexico	8,674	54	6,138	.....	5,031	.....	8,303	.....
Peru†	1,062	.....	156	.....	48	.....	1,443	56
Portugal	17	.....	.....	.....	.....	.....	.....	.....
Siam	55	3	12	.....	21	.....	.....	.....
South Africa	.....	.....	.....	.....	.....	.....	61	.....
Turkey	.....	.....	53	.....	.....	.....	.....	.....
United Kingdom	.....	.....	.....	28	.....	.....	.....	.....
Yugoslavia	22	132	.....	.....	.....	.....	.....	.....
Total imports	13,532	3,416	9,287	5,899	5,905	2,593	22,736	627

* Imports for consumption plus entries in bond.
† Imports shown from Chile were probably mined in Bolivia or Peru.

ALUMINUM EXTRUDED SHAPES, TUBE BLOOMS AND TUBING

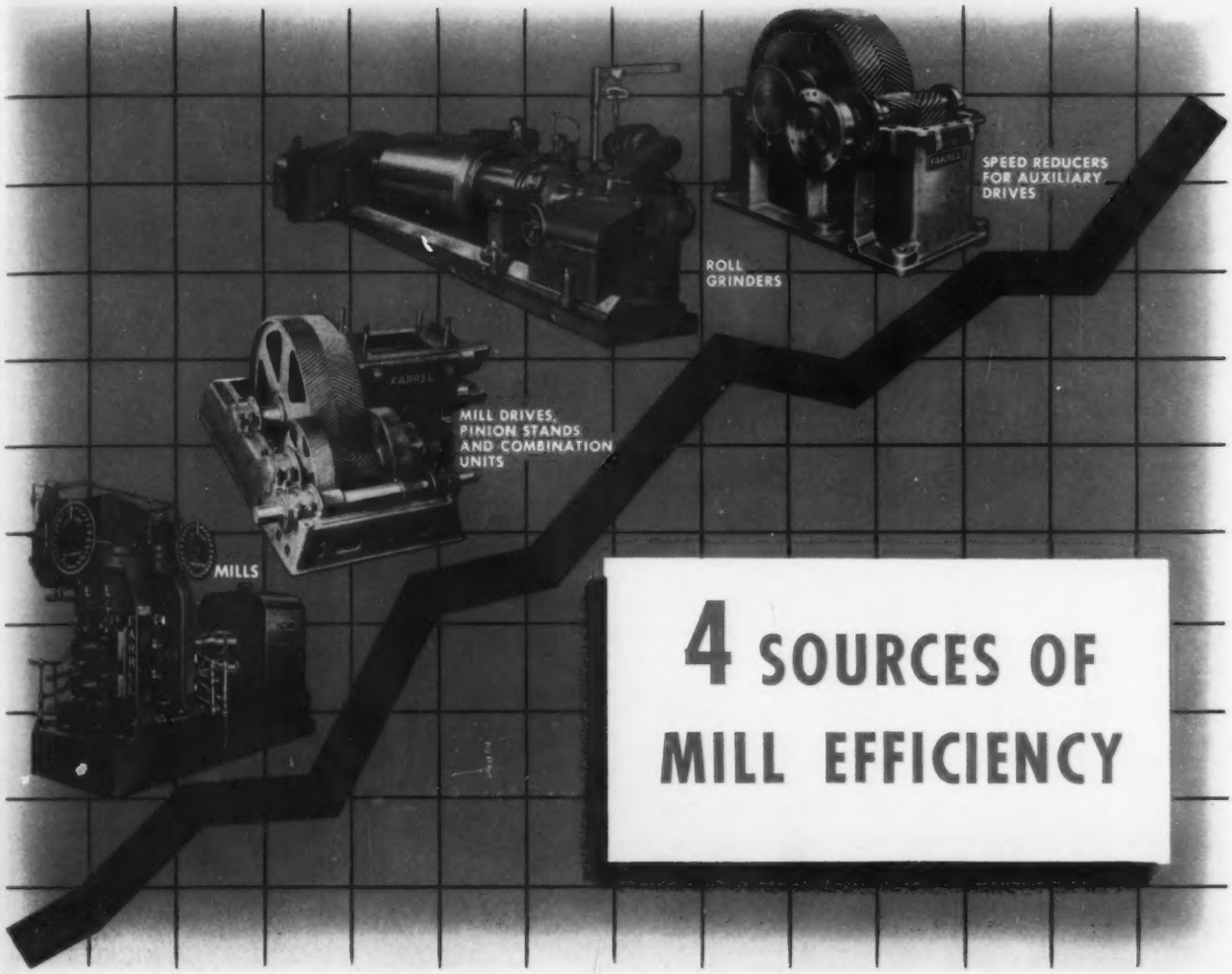
(Net Shipments (1000 lb)

Source: Bureau of Census

	1948	1949
Jan.	12,585	14,237
Feb.	14,323	13,828
March	16,032	15,745
April	16,110	13,692
May	15,566	12,055
June	16,850	11,248
July	14,833	9,525
Aug.	14,552	9,805
Sept.	11,224	10,516
Oct.	12,159	.....
Nov.	13,682	.....
Dec.	14,068	.....
Total	171,964	110,649*

* Nine months.

Continued on Page 222



4 SOURCES OF MILL EFFICIENCY

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MILLS are built in a wide range of sizes for rolling nonferrous rods, strips or sheets, metal foils and cold strip steel. Farrel also designs and manufactures coilers and special handling equipment required to make each installation a complete production unit.

MILL DRIVES, PINION STANDS AND COMBINATION UNITS are specially designed to suit individual requirements. Single, double and multiple reduction gear units are available in a wide range of ratios and capacities. Pinion stands with single or double helical pinions are built in any size, for any capacity. Combination units include reduction gear drive and pinion stand in a compact, integral housing.

ROLL GRINDERS are available in two types and nine standard sizes. These machines grind rolls with a perfect surface, free from marks of any kind, either straight, or with concave or convex contours of exact symmetry and accuracy.

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Plants: Ansonia and Derby, Conn., Buffalo, N. Y.
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SLAB ZINC CONSUMPTION

(By industry, short tons)

Source: Bureau of Mines

Industry and Product[1]	1947	1948
Galvanizing:[2]		
Sheet and strip	115,147	120,380
Wire and wire rope	49,726	49,906
Tube and pipe	77,238	81,874
Fittings	10,467	14,037
Other	108,749	104,792
Total	381,327	370,989
Brass products:		
Sheet, strip, and plate	50,212	51,813
Rod and wire	34,653	32,076
Tube	15,488	15,890
Castings and billets	3,155	4,226
Copper-base ingots	7,299	3,546
Other copper-base products	1,540	1,587
Total	112,347	109,140
Zinc-base alloy:		
Die castings	210,214	230,995
Alloy dies and rod	3,802	3,171
Slush and sand castings	453	462
Total	214,469	234,628
Rolled zinc	70,680	76,672
Zinc oxide	18,376	15,657
Other uses:		
Wet batteries	1,462	1,368
Desilverizing lead	2,687	2,654
Light-metal alloys	607	1,125
Other[3]	4,405	5,522
Total	9,161	10,669
Total: All uses	[4]786,380	[4]817,735

[1] Based on a canvass of 589 plants.
[2] Includes zinc used in electrogalvanizing, but excludes sherardizing.
[3] Includes zinc used in making zinc dust, bronze powder, alloys, chemicals, castings and miscellaneous uses not elsewhere mentioned.
[4] Includes 3,577 tons of remelt zinc in 1947 and 3,141 tons in 1948, and 3,912 tons in 1946.

LEAD AND ZINC MINING

Employment, Hours, and Earnings

Source: Bureau of Labor Statistics

	All Employees	Production and Related Workers			
	Number (thousands)	Number (thousands)	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings
1947	22.9	20.7	$55.09	41.3	$1.334
1948	21.7	19.2	61.37	41.3	1.486
1949					
Jan.	23.5	21.0	68.67	42.0	1.635
Feb.	23.5	21.0	67.82	42.1	1.611
Mar.	23.6	21.1	69.56	43.1	1.614
Apr.	23.5	21.0	64.74	41.0	1.579
May	22.4	19.8	66.03	41.9	1.576
June	22.0	19.4	64.00	41.4	1.546
July	19.1	16.5	61.32	40.0	1.533

U. S. CRUDE COPPER PRODUCTION

Smelter output from domestic ores

(short tons)

Source: Bureau of Mines

1845 to 1880	10,111*	1938	562,328
1881 to 1900	149,738*	1939	712,675
1901 to 1910	428,172*	1940	909,084
1911 to 1920	716,056*	1941	966,072
1921 to 1930	742,340*	1942	1,067,991
1931	521,356	1943	1,092,939
1932	272,005	1944	1,003,379
1933	225,000	1945	782,726
1934	244,227	1946	599,656
1935	381,294	1947	862,872
1936	611,410	1948	842,447
1937	834,661	1949	767,000†

* Yearly averages.
† Estimate by The Iron Age.

WORLD COBALT OUTPUT

Mine Production, Cobalt Content, Metric Tons

Source: Bureau of Mines

Country[1]	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948
Australia	13	12	13	14	15	9	10	11	12	(2)
Belgian Congo	1,080	2,301	2,256	1,856	2,061	1,877	2,800	2,150	3,563	4,322
Bolivia (Exports)	....	2	2	(2)	(2)	....	....	....	....	....
Burma	[4]229	218	73	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Canada[1]	332	360	119	38	80	16	49	34	260	701
Chile	(2)	(2)	2	(2)	3	5	1	(2)	(2)	(2)
Finland	(2)	(2)	(2)	96	79	86	84	101	50	(2)
Italy	(2)	89	81	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Japan	....	....	(2)	1	3	15	11	7	6	(2)
Morocco, French	680	330	65	3	216	243	100	200	370	278
Northern Rhodesia[4]	1,598	1,223	650	914	943	978	874	552	420	367
Sweden	....	....	....	....	....	....	9	....	....	....
United States (Shipments)	....	58	237	300	346	253	581	230	(5)	(5)
Total (Estimate)	4,500	5,000	4,000	3,500	4,200	3,900	4,700	3,500	5,200	6,200

In addition to countries listed, Brazil, China, Germany, and Spain produce cobalt, but production data are not available. Estimate included in total.
[1] Excludes cobalt recovered by Mond Nickel Co. at Clydach, Wales, from nickel copper ores of Sudbury, Ont. district.
[2] Data not available; estimate included in total.
[3] Less than 1 ton.
[4] Year ended June 30 of year stated.
[5] Bureau of Mines not at liberty to publish figure.

ZINC EXPORTS OF ORE AND MANUFACTURES

(short tons)

Source: Bureau of Mines, Department of Commerce, and American Bureau of Metal Statistics

	Ore, Concentrates, Dross	Slabs, Plates, Blocks	Sheet, Strip, etc.	Dust
1929	3,561	14,411	5,265	1,256
1930	1,162	4,633	3,868	1,177
1931	395	643	2,759	1,400
1932	178	6,471	3,010	1,378
1933	809	1,145	3,189	1,589
1934	3,452	5,105	3,462	1,658
1935	461	1,617	4,813	1,813
1936	245	37	4,483	1,793
1937	314	249	5,813	2,145
1938	135	(1)	5,736	2,253
1939	303	4,515	6,708	2,384
1940	448	79,091	7,490	3,044
1941	.....	89,309	5,246	2,901
1942	.....	133,981	4,767	1,772
1943	.....	97,439	3,167	5,859
1944	.....	21,576	4,020	295
1945	.....	7,782	6,235	330
1946	89	37,431	13,848	366
1947	1,404	106,669	10,898	1,646
1948	3,547	65,757	7,344	891
1949*	.....	56,703	5,843	535

*Ten months.
(1) Pigs and slabs not shown separately; included with sheets, strip, etc.

CURRENT QUOTATIONS

Current quotations on many of the commodities listed in this section are published in the regular weekly price pages. See index, p. 2, for page numbers of this week's price pages.

ELECTROLYTIC NICKEL*

(cents per pound)

Source: THE IRON AGE

1929 to Nov. 24, 1946	35.00
Nov. 25, 1946 to Dec. 31, 1947	37.67
Jan. 1, 1948 to July 21, 1948	36.56
July 22, 1948 to Dec. 31, 1948	36.56
Jan. 1, 1949 to Aug. 31, 1949	42.93
Sept. 1, 1949 to Dec. 31, 1949	42.97

* Spot nickel price at New York, duty paid.

WORLD MOLYBDENUM PRODUCTION

Ores and Concentrates, Metric Tons

Source: Bureau of Mines

Country[1]	1940	1941	1942	1943	1944	1945	1946	1947	1948
Canada	5	47	43	178	509	226	184	207	79
Chile	267	229	580	680	1,051	841	560	402	532
China: Manchuria[2]	.....	75	384	516	516	30	.....	.....	.....
Finland	47	148	126	108	110	92	99	.....	.....
Japan	13	41	56	87	189	108	52	18	1
Korea, South	83	122	217	291	394	54	.....	5	2
Mexico	310	522	855	1,138	717	468	818	138	.....
Norway	287	229	368	227	248	78	10	103	79
Peru	166	146	154	85	62	29	4	3	3
United States	15,564	18,309	25,829	27,972	17,545	13,972	8,264	12,268	12,114
Total	17,200	20,300	29,000	31,400	21,400	15,900	10,800	14,000	13,000

[1] Molybdenum is also produced in Greece, Rumania, Turkey, U. S. S. R., and Yugoslavia, but production data are not available. Minor producing nations include Australia, Austria, France, Indochina, Italy, French Morocco and Sweden. Estimates are included in total.
[2] Exports to Japan proper.

U. S. EXPORTS* OF NICKEL

(nickel content, short tons)

Source: U. S. Dept. of Commerce

	1948	1947	1946	1945	1944	1943	1942
Ore, concentrates, matte	(1)	(1)	11	(1)	(1)	73	(1)
Alloys and scrap	5,826	8,424	5,597	2,287	4,021	5,633	4,498
Ingots, bars, sheet, etc.	1,353	1,356	942	802	3,446	3,280	2,126
Electrical resistance wire	374	693	404	436	239	298	334
Nickel silver, crude, scrap or bars, rods, etc.	630	1,563	1,019	134	52	91	78

* Manufactures not recorded.
[1] Less than 1 ton.

Continued on Page 224

Continued

ANTIMONY PRICES
(cents per pound)

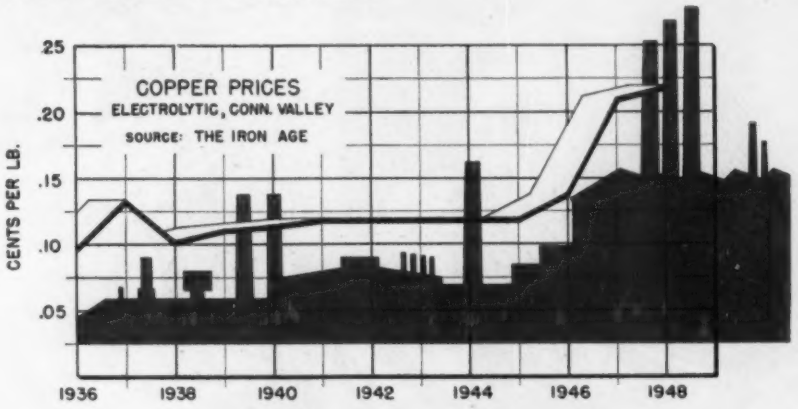
Source: THE IRON AGE

	1929	1934	1935	1936	1937	1938	1939*	1942*†	1946†	1947	1948	1949
Jan.	9.62	7.23¾	14.25	13.22	14.06¼	15.47	14.00	16.50	14.50	28.25	33.00	38.50
Feb.	9.61	7.15	14.50	12.97	14.68¾	15.72	14.00	16.50	14.50	28.25	33.00	38.50
Mar.	9.52	7.45	14.50	13.37½	16.81¼	15.75	14.00	16.50	14.50	30.62½	33.00	38.50
Apr.	9.59	7.86¼	14.37½	13.50	17.00	15.62½	14.00	14.50	14.50	33.00	33.00	38.50
May	9.12½	8.35½	13.95	13.50	15.81¼	14.75	14.00	14.50	14.50	33.00	33.00	38.50
June	8.90	7.98¾	12.75	13.25	14.81¼	13.90	14.00	14.50	14.50	33.00	35.00	38.50
July	8.56	7.83¾	12.75	13.00	14.72½	14.00	14.00	14.50	14.50	33.00	35.00	38.50
Aug.	8.83¾	8.40	12.90	12.62½	15.34	14.00	14.00	14.50	14.50	33.00	35.00	38.50
Sept.	8.81	8.31¾	13.25	12.50	17.85	14.00	14.00	14.50	14.50	33.00	35.00	38.50
Oct.	8.56	9.21¾	15.40	12.50	18.31¼	14.00	14.00	14.50	14.50	33.00	36.75	33.62
Nov.	8.62½	11.12½	15.75	12.50	16.43¾	14.00	14.00	15.50	21.25	33.00	38.50	32.00
Dec.	8.53	13.75	14.62½	12.72½	14.60	14.00	14.00	14.50	24.66¾	33.00	38.50	32.00
Average	9.03	8.73¼	14.09	12.97¼	15.87	14.60	14.42	15.00	15.91	32.01	34.90	37.01

Asiatic antimony, New York, quoted until the end of March, 1942. After that date quotation is for American antimony, f.o.b. Laredo, Tex.

* Price unchanged at 16.50¢ during 1940 and 1941.

† Price unchanged at 14.50¢ from 1943 through 1945.



WORLD VANADIUM PRODUCTION
Ores and Concentrates, Metric Tons

Source: U. S. Bureau of Mines

	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948
Argentina	15	1	6	.....	.....	4	3	6	7	(1)
Mexico	80	32	(2)	.....	.....	.....	.....	.....	.....	.....
Northern Rhodesia	384	368	342	388	426	254	219	68	56	173
Peru	1,016	1,214	1,017	1,010	847	514	688	322	435	511
South-West Africa	514	428	269	453	577	385	420	430	282	187
United States (shipments)[3]	900	981	1,140	2,014	2,534	1,600	1,344	577	961	(4)
Total[5]	2,909	3,024	2,774	3,865	4,384	2,757	2,674	1,403	1,741	(4)

[1] Figure not available.
[2] Less than 1 ton.
[3] Includes also vanadium recovered as a byproduct of phosphate-rock mining.
[4] Bureau of Mines not at liberty to publish figure.
[5] Total represents data only for countries shown in table. Excludes vanadium in ores produced in French Morocco, Spain, and U. S. S. R., for which figures are not available; also excluded from the total are the quantities of vanadium recovered as byproducts from other ores and raw materials.

CADMIUM PRICES
(dollars per pound)

Source: THE IRON AGE

June 3, 1943 to July 17, 1946	$0.90
July 18, 1946 to Nov. 20, 1946	1.25
Nov. 21, 1946 to Dec. 4, 1946	1.37½
Dec. 5, 1946 to Feb. 19, 1947	1.50
Feb. 20, 1947 to Aug. 11, 1948	1.75
Aug. 12, 1948 to Nov. 17, 1948	1.90
Nov. 18, 1948 to Dec. 31, 1949	2.00

COBALT PRICES
(Per Pound)

Source: THE IRON AGE

1940 to June 30, 1947[1]	$1.50
July 1, 1947 to Mar. 31, 1949[2]	1.85
Apr. 1, 1949 to Dec. 31, 1949[2]	1.85

[1] 100 lb lots.
[2] 550 lb lots.

VANADIUM ORE
Production in U. S.
Contained vanadium, short tons, including concentrates

Source: U. S. Bureau of Mines

1936	70	1942	2,220
1937	543	1943	2,793
1938	807	1944	1,764
1939	992	1945	1,482
1940	1,061	1946	636
1941	1,257	1947	1,059

Vanadium content of carnotite ore, vanadium and complex ores. Data for 1940 to 1947 are receipts at mills and government purchasing depots. 1948 data not released for publication.

REFINED COPPER CONSUMPTION
(Primary and secondary short tons)

Source: U. S. Bureau of Mines

	1947	1948
Cathodes	77,067	85,725
Wire bars	824,617	806,073
Ingots and ingot bars	159,193	140,875
Cakes and slabs	222,595	210,170
Billets	173,779	170,413
Other	6,043	7,328
	1,433,294	1,420,584

SECONDARY COPPER RECOVERY
(short tons)

Source: Bureau of Mines

Form of Recovery	1943	1944	1945
As unalloyed copper:			
At primary plants	122,464	86,398	98,662
At other plants	15,419	15,737	16,194
	137,883	102,135	112,856
In brass and bronze	912,782	814,898	860,287
In alloy iron and steel	1,021	2,454	2,133
In aluminum alloys	19,396	17,054	12,055
In other alloys	1,946	1,044	519
In chemical compounds	13,019	13,357	18,668
	948,164	848,807	893,660
	1,086,047	950,942	1,006,516

Form of Recovery	1946	1947	1948
As unalloyed copper:			
At primary plants	105,572	269,085	245,376
At other plants	31,337	34,007	38,650
	136,909	303,092	284,026
In brass and bronze	630,588	619,576	.....
In alloy iron and steel	1,932	2,830	.....
In aluminum alloys	14,434	16,962	.....
In other alloys	491	443	.....
In chemical compounds	19,192	18,838	.....
	666,637	658,649	688,762
	803,546	961,741	972,788

ROLLING, DRAWING, ALLOYING COPPER
Employment, Hours, and Earnings

Source: Bureau of Labor Statistics

	Production and Related Workers		
	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings
1947	$54.14	40.1	$1.350
1948	60.42	40.8	1.481
1949			
Jan.	61.37	39.8	1.542
Feb.	58.45	38.3	1.526
Mar.	54.09	35.8	1.511
Apr.	50.38	33.5	1.504
May	51.92	34.5	1.505
June	55.52	36.6	1.517
July	57.42	37.8	1.519

U. S. EXPORTS OF REFINED COPPER
(short tons)

Source: Bureau of Mines, Dept. of Commerce, and American Bureau of Metal Statistics

1929	496,448	1940	427,650
1930	376,557	1941	188,893
1931	278,787	1942	212,309
1932	147,678	1943	294,459
1933	151,913	1944	237,515
1934	296,359	1945	132,555
1935	295,198	1946	97,475
1936	259,032	1947	198,999
1937	345,584	1948	206,567
1938	421,012	1949	153,670*
1939	427,517		

Refined copper and primary manufactures.
* Ten months.

U. S. IMPORTS OF COPPER
(Unmanufactured, short tons)

Source: Bureau of Mines, Dept. of Commerce, and American Bureau of Metal Statistics

1929	287,156	1940	491,342
1930	408,577	1941	735,545
1931	292,946	1942	757,974
1932	195,996	1943	716,596
1933	143,717	1944	785,211
1934	213,288	1945	853,196
1935	257,182	1946	393,275
1936	190,339	1947	413,890
1937	279,876	1948	507,251
1938	252,164	1949	458,361*
1939	336,297		

Imports for consumption plus entries under bond.
* Ten months.

THE IRON AGE

METAL INDUSTRY FACTS ISSUE

SECTION 5

LABOR

PRODUCTIVITY

SAFETY

EMPLOYMENT

EARNINGS

LABOR TURNOVER

PRODUCTIVITY

ACCIDENT RATES

HIGHLIGHTS OF '49

SPOTLIGHTING 1949

Important Events Briefly Reviewed

Jan. 4—U. S. Supreme Court unanimously upheld State laws of Neb. and N. C. which ban the closed shop.

Jan. 10—U. S. Supreme Court refused to pass on legality of sections of IMRA of 1947 that relieve employers from obligation to bargain collectively with foremen.

Jan. 13.—Weirton Steel Co. and independent employee union signed agreement providing retirement pay of at least $100 a month for eligible employees participating in company's retirement annuity plan, and smaller pensions for other eligible employees, retroactive to Jan. 1, 1949.

Jan. 19—An NLRB trial examiner recommended that John L. Lewis and UMW should cease to give effect to the union-shop provision of the current contract with 18 captive coal mines.

Feb. 12—Communications Workers of America (Ind.) executive board recommended members should vote to join CIO. Referendum will decide.

Feb. 14—Philip Murray, president of CIO, told United Farm Equipment & Metal Workers of America to merge with United Automobile, Aircraft & Agricultural Implement Workers of America.

Mar. 11—John L. Lewis announces 2-week "memorial holiday" to begin on Mar. 14. Protests appointment of James Boyd as director of Dept. of Interior's Bureau of Mines.

Mar. 20—The 16 "nonoperating" railroad unions, representing about 1 million workers, and the railroads settled their 11-month dispute on terms recommended by Presidential fact-finding board Dec. 17, 1948. Employees get pay increase of 7c per hr retroactive to Oct. 1, 1948. On Sept. 1, 1949, workers will go on 40-hr week at same pay as present 48-hr week.

Mar. 28—Miners ended 2-week memorial holiday and returned to work.

Apr. 25—U. S. Supreme Court refused to review decision of U. S. Circuit Court of Appeals at Chicago in case of Inland Steel Co. v. United Steelworkers of America.

May 24—U. S. Court of Appeals at Boston held that Labor Management Relations Act of 1947 requires employer to bargain collectively with union in respect to group health and accident insurance.

May 27—NLRB ruled that John L. Lewis and UMW violated NLRA by causing employers to execute an unauthorized union-shop agreement . . . striking in support of demands was ruled further violation.

May 29—Ford strike settled. UAW and company agree to arbitration.

June 6—U. S. Circuit Court of Appeals in Washington upheld contempt of court conviction of UMW and John L. Lewis . . . Ordered payment of $1,420,000 in fines imposed by Federal District Court.

June 8—John L. Lewis ordered "a brief stabilizing perio of inaction" in mines starting June 13.

June 30—Contract between UMW and bituminous mine operators lapsed. Lewis orders 3-day week east of Mississippi River.

July 2—NLRB ruled that Carnegie-Illinois Steel Co. did not violate NLRA when it discharged 89 foremen who refused to perform maintenance work during 1946 strike . . . called foremen's refusal "serious breach of duty."

July 9—Arbitrators in Ford "speed up" case made 2 to 1 ruling . . . stated "absolute answer" is not possible.

July 12—President requested major steel companies and USWA to continue under terms of existing contract for 60 days, avoiding strike set for July 16.

July 15—President named 3-member board to investigate wage-pension demands in steel industry . . . Board to make recommendations.

July 16—A. F. Whitney, president of Brotherhood of Railroad Trainmen since 1928, died.

July 27—Executive Board of USWA agreed to sign non-Communist affidavit required by Taft-Hartley law.

Aug. 11—Employees of Ford Motor Co. voted 7 to 1 to strike, if necessary, to obtain contract demands.

Sept. 10—Steel Fact-Finding Board submitted its report . . . urged steelworkers to withdraw fourth-round wage demands . . . recommended employers finance social insurance and pension programs at cost of 10c per hr

Sept. 10—President requested extension of strike truce until Sept. 25 to permit time to study fact-finding report.

Sept. 19—Miners struck in protest against suspension of welfare payments.

Sept. 29—Ford Motor Co. and UAW (CIO) signed 30-month contract . . . calls for $100 per month pensions for workers aged 65 with 30 years service.

Sept. 30—USWA (CIO) ordered a strike in the steel industry . . . for non-contributory pensions and insurance.

Oct. 31—Bethlehem Steel Co. signed contract with USWA (CIO) . . . first break in month-long strike in steel industry. During following 2 weeks other companies signed in rapid order. Agreements generally include $100 per month non-contributory pensions and social insurance to cost 5c per hr, cost to be shared by company and worker.

Nov. 9—John L. Lewis orders miners back to work. They had been idle since Sept. 19. Government intervention was averted.

Dec. 1—Three-week mine truce expired. Miners stayed out again.

Dec. 5—Miners returned to work, again on 3-day week.

Dec. 7—Agreement between Aluminum Co. of America and USWA (CIO) ends 51-day strike affecting 16,000 employees at five Alcoa plants.

Quick Guide to section No. 5

A complete cross-referenced index is on p. 3.

Metal Industry Facts

Labor
Productivity
Safety

REFINING OF ALUMINUM

Hours and Earnings

Source: Bureau of Labor Statistics

	Production and Related Workers		
	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings
1947	$53.46	40.9	$1.307
1948	58.95	41.4	1.424
1949			
January	61.59	41.5	1.484
February	60.68	41.0	1.480
March	60.86	41.1	1.476
April	62.81	41.9	1.499
May	61.07	41.1	1.486
June	60.91	41.1	1.482
July	61.25	41.3	1.483

TRANSPORTATION EQUIPMENT

Employment, Hours, and Earnings

Source: Bureau of Labor Statistics

	All Employees	Production and Related Workers			
	Number (thousands)	Number (thousands)	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings
1947	1,253	1,038	$56.87	39.3	$1.447
1948	1,253	1,031	61.58	39.0	1.579
1949:					
Jan.	1,267	1,038	66.23	39.9	1.660
Feb.	1,245	1,021	65.79	39.8	1.653
Mar.	1,248	1,017	63.19	38.6	1.637
Apr.	1,242	1,012	63.58	38.7	1.643
May	1,183	955	63.03	38.2	1.650
June	1,225	996	65.70	39.6	1.659
July	1,239	1,010	66.19	39.8	1.663
Aug.	1,236	1,011	.....	....	.....

ELECTRICAL MACHINERY

Employment, Hours, and Earnings

Source: Bureau of Labor Statistics

	All Employees	Production and Related Workers			
	Number (thousands)	Number (thousands)	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings
1947	918	706	$51.25	40.3	$1.272
1948	869	656	55.66	40.1	1.386
1949:					
Jan.	834	623	57.01	39.7	1.436
Feb.	818	607	57.02	39.6	1.440
Mar.	795	585	56.50	39.1	1.445
Apr.	770	560	55.59	38.5	1.444
May	746	538	55.99	38.9	1.443
June	724	518	56.16	39.0	1.440
July	711	504	56.00	38.7	1.447
Aug.	716	510	.....	....	.....

EMPLOYEES IN SELECTED INDUSTRY GROUPS

(000 omitted)

Source: Bureau of Labor Statistics

Industry Group and Industry	1949*									Annual Average	
	Sept.	Aug.	July	June	May	April	Mar.	Feb.	Jan.	1948	1947
Total employees	43,488	43,027	42,535	42,792	42,731	42,966	42,918	43,061	43,449	44,201	43,371
Mining	955	968	494	970	974	984	981	986	991	981	943
Metal	92.0	92.1	95.3	100.8	101.4	103.1	102.0	101.1	98.2	98.5	96.8
Iron			36.4	36.8	36.5	36.5	35.2	35.2	35.1	35.5	33.1
Copper			21.6	22.3	22.8	23.2	23.5	22.5	20.9	22.3	22.5
Lead and zinc			19.1	22.0	22.4	23.5	23.6	23.5	22.3	21.7	22.9
Anthracite			77.6	77.1	77.0	78.3	78.6	79.5	80.5	80.0	79.4
Bituminous-coal	428.8	433.0	410.5	431.2	438.4	446.4	448.0	455.0	457.5	444.9	431.8
Crude petroleum and natural gas production			265.7	263.1	260.1	258.8	257.4	258.3	260.0	257.5	237.3
Nonmetallic mining and quarrying	98.3	99.7	99.7	97.8	97.5	97.3	94.5	92.5	94.3	100.1	97.8
Contract construction	2,315	2,333	2,279	2,205	2,137	2,036	1,947	1,926	2,016	2,165	1,982
Manufacturing	14,322	14,088	13,755	13,885	13,877	14,177	14,475	14,649	14,782	15,286	15,247
Durable goods [2]	7,391	7,305	7,255	7,396	7,441	7,656	7,819	7,923	8,044	8,315	8,373
Nondurable goods [3]	6,931	6,783	6,500	6,489	6,436	6,521	6,656	6,726	6,738	6,970	6,874
Ordnance and accessories	22.7	23.4	24.0	25.3	26.1	27.3	27.9	28.0	28.2	28.1	26.9
Primary metal industries	1,105	1,088	1,095	1,135	1,158	1,195	1,229	1,245	1,257	1,247	1,231
Blast furnaces, steel works, and rolling mills			581.8	599.1	610.8	621.9	628.3	628.9	626.1	612.0	589.0
Iron and steel foundries			204.3	212.6	214.9	227.3	242.4	248.6	254.9	259.3	256.8
Primary smelting and refining of non-ferrous metals			51.3	54.0	54.7	56.1	56.0	55.3	55.2	55.6	55.1
Rolling, drawing, and alloying of non-ferrous metals			78.2	80.9	84.2	88.8	95.3	99.6	102.9	103.8	111.5
Nonferrous foundries			70.5	72.1	73.0	75.4	78.2	80.9	85.0	85.2	85.9
Other primary metal industries			109.1	116.3	119.9	125.7	129.1	131.5	133.3	130.7	132.3
Fabricated metal products (except ordnance, machinery, and transportation equipment)	864	840	829	838	843	867	890	917	932	976	995
Tin cans and other tinware			49.2	47.1	44.2	43.8	44.6	44.9	46.2	48.7	47.7
Cutlery, hand tools, and hardware			133.4	138.0	140.7	145.2	148.8	152.8	154.5	154.4	156.6
Heating apparatus (except electric) and plumbers' supplies			116.3	118.6	123.3	129.4	134.5	139.7	145.2	165.8	174.3
Fabricated structural metal products			200.9	202.6	202.3	204.0	206.8	210.5	212.5	215.9	208.7
Metal stamping, coating, and engraving			143.4	142.5	140.2	145.7	151.0	157.1	159.9	172.2	180.4
Other fabricated metal products			185.7	188.9	191.8	199.1	204.6	211.5	213.8	219.0	229.1
Machinery (except electrical)	1,230	1,226	1,239	1,265	1,327	1,385	1,431	1,458	1,481	1,533	1,535
Engines and turbines			69.0	71.8	75.0	77.5	80.1	81.9	83.0	83.8	83.9
Agricultural machinery and tractors			177.0	183.7	187.1	190.0	192.5	193.8	194.6	191.3	178.9
Construction and mining machinery			96.4	101.9	106.0	111.4	114.8	116.5	118.6	122.6	120.2
Metalworking machinery			198.0	205.9	212.8	219.0	223.2	226.3	232.9	239.5	248.3
Special-industry machinery (except metalworking machinery)			163.9	169.3	175.6	181.6	188.4	192.0	195.0	201.9	204.4
General industrial machinery			179.0	184.0	189.2	194.5	200.2	204.3	207.1	209.8	208.6
Office and store machines and devices			87.6	89.7	90.5	91.3	94.8	97.1	98.1	109.1	108.2
Service-industry and household machines			126.3	133.2	136.9	158.8	167.0	169.1	172.5	191.3	184.8
Miscellaneous machinery parts			142.1	145.3	153.6	161.1	169.9	176.6	179.6	183.4	197.3
Electrical machinery	739	716	711	724	746	770	795	818	834	869	918
Electrical generating, transmission, distribution, and industrial apparatus			280.3	283.7	292.9	303.2	310.1	314.8	314.8	332.9	343.5
Electrical equipment for vehicles			62.1	62.0	63.4	64.2	67.2	67.6	68.2	69.0	74.3
Communication equipment			253.2	260.5	266.0	270.7	278.4	291.0	302.7	312.2	336.2
Electrical appliances, lamps, and miscellaneous products			115.3	117.9	123.3	131.7	139.2	144.4	148.0	154.8	164.0
Transportation equipment	1,225	1,236	1,239	1,225	1,183	1,242	1,248	1,245	1,267	1,263	1,263
Automobiles			796.4	777.2	726.9	777.9	775.6	772.5	794.0	792.8	776.2
Aircraft and parts			259.7	253.7	254.1	259.3	259.4	256.0	254.9	228.1	228.6
Aircraft			172.9	169.3	169.8	171.0	171.0	168.9	168.5	151.7	151.4
Aircraft engines and parts			52.1	53.1	53.8	53.0	52.8	52.2	52.1	48.7	47.8
Aircraft propellers and parts			8.3	8.1	7.8	7.7	7.7	7.6	7.6	7.4	7.4
Other aircraft parts and equipment			26.4	23.2	22.7	27.6	27.9	27.3	26.7	22.4	22.0
Ship and boat building and repairing			100.4	103.6	108.2	109.0	113.6	116.4	118.1	140.7	159.4
Ship building and repairing [4]			88.7	91.2	95.1	95.9	100.3	102.2	103.7	124.2	137.3
Railroad equipment			73.5	81.3	83.0	84.6	87.5	88.2	87.6	84.8	81.4
Other transportation equipment			9.4	9.6	10.5	11.1	11.5	11.5	12.3	16.6	17.0
Instruments and related products	233	233	231	237	238	242	245	246	251	260	285
Ophthalmic goods			26.1	26.8	27.3	27.7	28.0	28.1	28.0	28.2	30.1
Photographic apparatus			51.1	53.0	53.8	55.6	56.1	56.7	57.7	60.3	61.6
Watches and clocks			29.5	30.6	30.6	31.1	31.6	32.0	33.8	40.8	41.3
Professional and scientific instruments			124.3	126.3	126.3	128.0	129.0	129.4	131.7	130.5	131.9
Miscellaneous manufacturing industries	427	399	384	403	404	414	426	434	439	469	461
Jewelry, silverware, and plated ware			49.1	53.4	54.3	55.7	57.1	58.5	58.7	60.3	58.1
Toys and sporting goods			63.8	65.3	65.6	66.5	66.4	67.0	66.9	80.8	80.0
Costume jewelry, buttons, notions			53.8	51.6	50.1	53.3	57.8	60.0	59.4	62.3	61.0
Other miscellaneous manufacturing industries			217.6	232.6	233.5	238.6	244.9				

* Figures are preliminary for June through September.

Indexes of Production-Worker Employment and Weekly Payrolls in Manufacturing Industries.

(1939 average = 100)

Source—Bureau of Labor Statistics.

	Employment	Weekly Payroll
1939: Average	100.0	100.0
1940: Average	107.5	113.6
1941: Average	132.8	184.9
1942: Average	156.9	241.5
1943: Average	183.3	331.1
1944: Average	178.3	343.7
1945: Average	157.0	293.5
1946: Average	147.8	271.1
1947: Average	156.2	326.9
1948: Average	155.2	351.4
1948: Sept.	158.9	366.8
Oct.	157.6	366.7
Nov.	155.9	362.8
Dec.	153.5	360.7
1949: Jan.	148.9	345.9
Feb.	147.4	340.4
Mar.	145.3	332.8
April	141.8	319.2
May	138.2	312.8
June	138.4	315.7
July	138.9	312.9
Aug.	141.3	323.2
Sept.	143.8	.....

Total U. S. Labor Force by Employment Status

(Estimated—000 omitted)

Source: Bureau of Labor Statistics; Bureau of Census

Average	Total Labor Force[1]	Civilian Labor Force	Employment	Unemployment
1929	49,440	49,180	47,630	1,550
1930	50,080	49,820	45,480	4,340
1931	50,680	50,420	42,400	8,020
1932	51,250	51,000	38,940	12,060
1933	51,840	51,590	38,760	12,830
1934	52,490	52,230	40,890	11,340
1935	53,140	52,870	42,260	10,610
1936	53,740	53,440	44,410	9,030
1937	54,320	54,000	46,300	7,700
1938	54,950	54,610	44,220	10,390
1939	55,600	55,230	45,750	9,480
1940	56,030	55,640	47,520	8,120
1941	57,380	55,910	50,350	5,560
1942	60,230	56,410	53,750	2,660
1943	64,410	55,540	54,470	1,070
1944	65,890	54,630	53,960	670
1945	65,140	53,860	52,820	1,040
1946	60,820	57,520	55,250	2,270
1947: Jan.	59,510	57,790	55,390	2,400
Feb.	59,630	58,010	55,520	2,490
Mar.	59,960	58,390	56,060	2,330
April	60,650	59,120	56,700	2,420
May	61,760	60,290	58,330	1,960
June[3]	64,007	62,609	60,055	2,555
July	64,035	62,664	60,079	2,584
Aug.	63,017	61,665	59,569	2,096
Sept.	62,130	60,784	58,872	1,912
Oct.	62,219	60,892	59,204	1,687
Nov.	61,501	60,216	58,595	1,621
Dec.	60,870	59,590	57,947	1,643
Aver.	61,607	60,168	58,027	2,142
1948: Jan.	60,455	59,214	57,149	2,065
Feb.	61,004	59,778	57,139	2,639
Mar.	61,005	59,769	57,329	2,440
April	61,760	60,524	58,330	2,193
May	61,660	60,422	58,660	1,761
June	64,740	63,479	61,296	2,184
July	65,135	63,842	61,615	2,227
Aug.	64,511	63,186	61,245	1,941
Sept.	63,578	62,212	60,312	1,899
Oct.	63,166	61,775	60,134	1,642
Nov.	63,138	61,724	59,893	1,831
Dec.	62,828	61,375	59,434	1,941
Aver.	62,748	61,442	59,378	2,064
1949: Jan.	61,548	60,078	57,414	2,664
Feb.	61,896	60,388	57,167	3,221
Mar.	62,305	60,814	57,647	3,167
April	62,327	60,835	57,819	3,016
May	63,452	61,983	58,694	3,289
June	64,866	63,398	59,619	3,778
July	65,278	63,815	59,720	4,095
Aug.	65,105	63,637	59,974	3,689
Sept.	64,222	62,783	59,411	3,351

[1] Total labor force consists of the civilian labor force and the armed forces. However, about 150,000 persons in the armed forces in April 1940 who were stationed outside continental U. S. and who were not enumerated in the 1940 Census of Population are excluded from the total labor force. Figures since 1940 have correspondingly been reduced by 150,000 for purposes of comparability.

[2] Data for week ending March 30, 1940.

[3] Beginning in June 1947, the estimates are presented rounded to the nearest thousand. Because of rounding the individual figures do not necessarily add to the group totals.

Metal Industry Facts

Labor
Productivity
Safety

DEATHS AND DEATH RATES OF WORKERS BY MAJOR INDUSTRIES

Source: National Safety Council

	Total Deaths	Deaths per 100,000 Workers 1948	1947
Trade	1,500	14	15
Service	2,200	15	18
Manufacturing	2,600	16	17
Public utilities	400	29	31
Transportation	1,500	48	53
Agriculture	4,400	55	52
Construction	2,500	93	96
Mining, quarrying, oil and gas wells	1,400	154	167

OCCUPATIONAL DEATHS AND DEATH RATES, 1933-1948

Source: National Safety Council

Year	Deaths	No. of Workers (Millions)	Deaths per 100,000 Workers
1933	14,500	39	37
1934	16,000	42	38
1935	16,500	43	38
1936	18,500	45	41
1937	19,000	46	41
1938	16,000	44	36
1939	15,500	45	34
1940	17,000	46	37
1941	18,000	49	37
1942	18,500	52	36
1943	17,500	53	33
1944	16,000	52	31
1945	16,500	51	32
1946	16,500	53½	31
1947	17,000	56½	30
1948	16,500	57½	29

INJURY RATES BY INDUSTRY—1948

Source: National Safety Council

Industry	Number of Units	Frequency Rates: Deaths and Permanent Disability	Frequency Rates: Temporary Total Disability	Frequency Rates: All Disabilities	Frequency Rates: Rank (All Cases)	Severity Rates: Rate	Severity Rates: Rank
Aircraft Manufacturing	23	.47	4.09	4.56	2	.44	5
Air Transport	13	.39	14.66	15.05	25	1.88	32
Automobile	208	.84	7.63	8.47	10	.65	14
Cement	137	1.03	5.78	6.81	5	2.72	36
Chemical	569	.55	6.96	7.51	6	.90	18
Clay Products	118	.92	18.61	19.53	33	1.58	29
Communication	65	.04	2.56	2.60	1	.18	1
Construction	256	.70	15.81	16.51	28	2.51	35
Electrical Equipment	233	.76	4.80	5.56	3	.45	6
Electrical Utilities	231	.63	14.17	14.80	24	2.11	33
Food	535	1.57	16.53	18.10	31	1.09	21
Foundries	171	1.12	19.94	21.06	35	1.74	31
Gas Utilities	423	.47	19.46	19.93	34	1.11	23
Glass	52	.44	9.06	9.58	14	.48	8
Leather	77	.54	14.93	15.47	27	.48	7
Lumber	116	2.10	46.94	49.04	40	4.64	38
Machinery	345	1.48	11.36	12.84	22	.84	16
Marine Transport	50	.81	25.62	26.43	37	2.29	34
Meat Packing	39	.48	17.36	17.84	29	.83	12
Mining, Coal	200	2.51	43.58	46.09	39	7.61	40
Mining, other than coal	181	1.92	38.55	40.47	38	6.37	39
Misc. Iron, Steel Products	339	1.10	12.86	13.96	23	1.02	20
Misc. Manufacturing	110	.77	8.06	8.83	12	.56	10
Nonferrous Metals & Prods.	110	1.52	10.62	12.14	19	1.30	27
Petroleum	235	.50	11.77	12.27	20	1.16	25
Printing & Publishing	55	.35	9.48	9.83	16	.43	4
Pulp & Paper	397	.96	14.19	15.15	26	1.14	24
Quarry	163	1.24	17.83	19.07	32	3.38	37
Railroad Equipment	27	1.80	5.78	7.58	7	1.26	26
Rubber	81	.55	7.80	8.35	9	.65	13
Service	30	.36	8.64	9.00	13	.82	15
Sheet Metal	131	1.02	8.73	9.75	15	.90	17
Shipbuilding	43	.45	9.69	10.14	17	1.11	22
Steam Railway				16.39			
Steel	143	1.17	4.89	5.86	4	1.65	30
Storage & Warehousing	82	.28	12.13	12.41	21	.55	9
Textile	267	.64	8.15	8.79	11	.58	11
Tobacco	42	.63	7.09	7.72	8	.19	2
Transit	209	.34	17.67	18.01	30	.97	19
Wholesale and Retail Trade	39	.06	10.29	10.35	18	.22	3
Woodworking	106	1.53	23.69	25.22	36	1.52	28
All Reporting Industries	6,707	.79	10.70	11.49	..	1.12	..

UNSAFE ACTS AND CAUSES OF PERMANENT DISABILITIES AND DEATHS

Source: National Safety Council

Unsafe Act or Cause	All Industries* Number	All Industries* Pct	Machinery	Steel	Sheet Metal	Metal Products	Non-Ferrous Metals	Chemical	Pulp and Paper	Food	Public Utility	Construction
Unsafe Act												
Total Accidents	3,112	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Unnecessary exposure to danger	796	25	25	27	20	21	31	24	31	29	22	30
Unsafe or improper use of equipment	467	15	19	15	21	13	13	11	17	7	12	12
Working on moving or dangerous equip.	428	14	13	15	13	12	9	18	14	19	12	9
Non-use personal protective equip.	275	9	7	9	6	7	9	7	6	4	20	9
Improper starting or stopping	284	9	12	8	3	12	10	9	8	7	9	13
Overloading, poor arranging	214	7	7	9	5	4	6	8	10	5	5	9
Making safety devices inoperative	157	5	5	1	9	8	4	4	2	4	8	2
Operating at unsafe speed	93	3	7	2	3	4	2	3	3	5	2	5
No unsafe act	398	13	9	14	20	19	6	16	9	20	10	111
Personal Cause												
Total Accidents	4,818	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Improper attitude	2,376	50	50	47	56	51	45	50	46	52	54	44
Lack of knowledge or skill	1,457	30	34	33	22	26	29	27	35	24	26	34
Bodily defects	102	2	1	2	1	2	2	2	3	3	2	4
No personal cause	883	18	15	18	21	21	24	21	16	21	17	18
Mechanical Cause												
Total Accidents	4,818	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Hazardous arrang. or procedure	1,634	34	33	41	26	27	36	35	40	28	30	41
Improper guarding	1,214	25	22	22	36	24	21	22	28	26	30	18
Defective agencies	747	15	14	15	14	16	20	18	16	17	15	21
Unsafe dress or apparel	277	6	5	5	6	6	8	5	3	5	8	7
Improper illumination, ventilation	32	1	1	1	**	**	**	1	**	2	1	2
No mechanical cause	914	19	25	16	18	27	15	19	13	22	16	11
Number of Accidents:												
Unsafe acts	3,112	...	564	244	200	187	202	214	208	182	453	127
Personal and mech. causes	4,818	...	800	449	295	303	291	355	360	262	707	243

* Includes information from industries other than the ten for which detailed information is shown.
** Less than half of one per cent.

THE U. S. LABOR FORCE

ESTIMATED TOTAL LABOR FORCE CLASSIFIED BY EMPLOYMENT STATUS, HOURS WORKED, AND SEX—1948-1949

Source: U. S. Department of Commerce, Bureau of the Census

Labor Force	Estimated Number of Persons 14 Years of Age and Over[1] (In thousands)																				
	1949									1948											
	Sept.	Aug.	July[2]	June	May	April	Mar.	Feb.	Jan.	Dec.	Nov.	Oct.	Sept.	Aug.	July	June	May	April	Mar.	Feb.	Jan.
	Total, Both Sexes									Total, Both Sexes											
Total labor force[3]	64,222	65,105	65,278	64,866	63,452	62,327	62,305	61,896	61,548	62,828	63,138	63,168	63,578	64,511	65,135	64,740	61,660	61,760	61,005	61,004	60,456
Civilian labor force	62,763	63,637	63,815	63,398	61,983	60,835	60,814	60,388	60,078	61,375	61,724	61,775	62,212	63,186	63,842	63,479	60,422	60,524	59,769	59,778	59,214
Unemployment	3,351	3,889	4,095	3,778	3,289	3,016	3,167	3,221	2,664	1,941	1,831	1,842	1,899	1,941	2,227	2,184	1,761	2,193	2,440	2,639	2,065
Employment	59,411	59,947	59,720	59,619	58,694	57,819	57,647	57,167	57,414	59,434	59,893	60,134	60,312	61,245	61,615	61,296	58,660	58,330	57,329	57,139	57,149
Nonagricultural	51,254	51,441	50,073	49,924	49,720	49,999	50,254	50,174	50,651	52,059	51,932	51,506	51,590	52,801	52,452	51,899	50,800	50,883	50,492	50,368	50,069
Worked 35 hours or more	27,366	40,407	27,686	40,924	41,315	40,761	40,761	40,830	41,314	43,425	40,036	42,451	30,372	42,305	32,404	43,240	42,726	42,179	42,576	40,977	42,242
Worked 15-34 hours	19,683	5,231	14,701	5,425	5,073	5,913	5,964	5,737	5,533	5,303	8,469	5,747	17,149	4,811	12,147	4,910	4,886	4,902	4,467	5,256	4,814
Worked 1-14 hours[4]	1,867	1,509	1,438	1,525	1,778	1,868	1,944	1,876	1,899	1,844	1,877	1,726	1,596	1,447	1,394	1,403	1,637	1,776	1,684	1,798	1,513
With a job but not at work[5]	2,339	4,294	6,247	2,051	1,554	1,438	1,585	1,730	1,907	1,488	1,549	1,583	2,472	4,239	6,508	2,348	1,550	2,027	1,753	2,838	1,721
Agricultural	8,158	8,507	9,647	9,696	8,974	7,820	7,393	6,993	6,763	7,375	7,961	8,627	8,723	8,444	9,163	9,396	7,881	7,448	6,847	6,771	7,060
Worked 35 hours or more	6,294	6,724	7,328	7,400	7,159	5,656	4,973	4,591	4,299	5,235	5,485	6,811	6,705	6,122	7,011	7,390	5,936	5,670	4,754	3,844	4,729
Worked 15-34 hours	1,455	1,290	1,871	1,952	1,474	1,700	1,833	1,776	1,725	1,680	1,997	1,455	1,636	1,669	1,767	1,669	1,513	1,336	1,397	1,759	1,765
Worked 1-14 hours[4]	269	264	262	228	211	243	357	367	392	265	279	223	218	249	203	182	201	187	265	386	250
With a job but not at work[5]	140	228	189	116	130	221	231	260	345	196	201	140	165	405	184	154	211	255	431	782	316
	Males									Males											
Total labor force[3]	45,759	46,613	46,712	46,282	45,337	45,143	45,000	44,721	44,614	45,012	45,182	45,223	45,453	46,525	46,715	46,033	44,519	44,589	44,228	44,236	44,071
Civilian labor force	44,319	45,163	45,267	44,832	43,886	43,668	43,525	43,229	43,161	43,573	43,782	43,851	44,101	45,215	45,437	44,794	43,298	43,369	43,009	43,026	42,948
Unemployment	2,233	2,519	2,845	2,596	2,366	2,205	2,433	2,417	2,011	1,411	1,231	1,088	1,251	1,326	1,448	1,375	1,239	1,567	1,765	1,889	1,574
Employment	42,085	42,644	42,422	42,233	41,521	41,463	41,092	40,812	41,150	42,162	42,551	42,763	42,850	43,889	43,989	43,420	42,058	41,801	41,244	41,137	41,273
Nonagricultural	35,521	35,549	34,799	34,796	34,411	34,714	34,822	34,689	35,193	35,991	36,079	36,016	35,960	36,836	36,633	36,162	35,386	35,352	35,063	35,046	35,018
Worked 35 hours or more	20,498	29,277	20,820	29,889	29,813	29,621	29,425	29,425	29,888	31,469	29,442	31,081	23,115	31,228	24,344	31,700	31,006	30,575	30,649	29,592	30,719
Worked 15-34 hours	12,663	3,080	9,604	3,004	2,766	3,237	3,286	3,199	3,075	2,678	4,719	3,092	10,577	2,599	7,786	2,535	2,565	2,525	2,390	2,800	2,414
Worked 1-14 hours[4]	810	593	651	629	780	825	802	825	879	763	808	711	646	563	553	597	709	787	729	899	810
With a job but not at work[5]	1,551	2,599	3,723	1,274	1,052	1,032	1,109	1,239	1,352	1,082	1,110	1,132	1,622	2,448	3,962	1,332	1,105	1,485	1,294	1,755	1,275
Agricultural	6,565	7,095	7,623	7,438	7,109	6,749	6,470	6,123	5,957	6,171	6,472	6,747	6,899	7,053	7,356	7,257	6,673	6,450	6,181	6,091	6,254
Worked 35 hours or more	5,465	6,019	6,356	6,453	6,249	5,372	4,738	4,344	4,102	4,813	5,007	5,772	5,858	5,663	6,152	6,310	5,525	5,321	4,548	3,698	4,508
Worked 15-34 hours	792	705	916	731	610	1,023	1,294	1,263	1,261	1,046	1,120	738	743	882	903	707	862	816	1,035	1,375	1,255
Worked 1-14 hours[4]	179	161	185	148	134	153	223	270	275	143	163	124	138	179	145	111	136	124	211	330	202
With a job but not at work[5]	128	209	168	105	115	201	216	246	318	170	182	114	151	330	157	129	150	189	387	688	292
	Females									Females											
Total labor force[3]	18,463	18,492	18,566	18,584	18,115	17,184	17,305	17,175	16,932	17,816	17,956	17,937	18,125	17,988	18,420	18,701	17,141	17,171	16,777	16,788	16,384
Civilian labor force	18,444	18,474	18,548	18,566	18,097	17,167	17,289	17,159	16,917	17,802	17,942	17,924	18,111	17,971	18,405	18,685	17,124	17,155	16,760	16,752	16,368
Unemployment	1,118	1,170	1,250	1,180	923	811	734	804	653	530	600	554	648	615	779	809	522	626	675	750	491
Employment	17,326	17,303	17,298	17,386	17,173	16,356	16,555	16,355	16,264	17,272	17,342	17,371	17,462	17,356	17,626	17,876	16,602	16,529	16,085	16,002	15,876
Nonagricultural	15,733	15,892	15,274	15,128	15,309	15,285	15,632	15,485	15,458	16,068	15,853	15,490	15,630	15,965	15,819	15,737	15,414	15,531	15,419	15,322	15,071
Worked 35 hours or more	6,868	11,130	6,866	11,035	11,502	11,140	11,336	11,405	11,426	11,956	10,594	11,370	7,257	11,079	8,060	11,540	11,720	11,604	11,927	11,385	11,523
Worked 15-34 hours	7,020	2,151	5,097	2,421	2,307	2,676	2,678	2,538	2,458	2,625	3,750	2,655	6,572	2,212	4,381	2,375	2,321	2,377	2,077	2,455	2,200
Worked 1-14 hours[4]	1,057	916	787	896	998	1,063	1,142	1,051	1,020	1,081	1,069	1,015	950	884	831	806	928	989	955	899	903
With a job but not at work[5]	788	1,695	2,524	777	502	406	476	491	555	406	439	451	850	1,791	2,546	1,016	445	562	459	583	446
Agricultural	1,593	1,412	2,024	2,258	1,865	1,071	923	870	806	1,204	1,489	1,880	1,833	1,391	1,807	2,139	1,188	998	686	680	806
Worked 35 hours or more	829	705	970	947	910	284	235	247	197	422	478	1,039	847	459	859	1,080	411	349	206	146	224
Worked 15-34 hours	663	585	955	1,221	864	677	539	513	464	634	877	717	893	787	864	962	651	520	382	384	510
Worked 1-14 hours[4]	90	103	77	80	77	90	134	97	117	122	116	99	80	70	58	71	65	83	54	56	48
With a job but not at work[5]	12	19	21	11	15	20	15	14	27	26	19	26	14	78	27	25	61	88	44	94	23

[1] Estimates are subject to sampling variation which may be large in cases where the quantities shown are relatively small. Therefore, the smaller estimates should be used with caution. All data exclude persons in institutions. Because of rounding, the individual figures do not necessarily add to group totals.

[2] Census survey week contains legal holiday.

[3] Total labor force consists of the civilian labor force and the armed forces.

[4] Excludes persons engaged only in incidental unpaid family work (less than 15 hours); these persons are classified as not in the labor force.

[5] Includes persons who had a job or business, but who did not work during the census week because of illness, bad weather, vacation, labor dispute or because of temporary lay-off with definite instructions to return to work within 30 days of lay-off. Does not include unpaid family workers.

Metal Industry Facts

Labor
Productivity
Safety

Accidents to Workers—1948

Source: National Safety Council

Place of Accident	Deaths	Injuries
At Work	16,500	1,950,000
Away from Work	32,000	2,850,000
Motor Vehicle	16,500	550,000
Public non-motor vehicle	8,000	1,000,000
Home	7,500	1,100,000

NEED LATER DATA?

Additional data, and other information concerning the subjects listed in this Metal Industry Fact Issue, may be obtained at any time during the coming year by writing Editor, Metal Industry Fact Issue, The Iron Age, 100 E. 42nd St., New York 17.

TYPE OF ACCIDENT AND PART OF BODY INJURED

Compensated Occupational Injuries

Source: National Safety Council (as reported by labor departments of seven states—1938)

Type of Accident	Total	Eye	Arm	Hand	Thumb and Finger	Leg	Foot	Toe	Other Parts and General
All Cases (Including Deaths and Permanent Total Disabilities)									
Number of Cases	232,068	8,982	20,959	19,051	50,956	30,723	17,474	11,049	72,874
Average Compensation	$274	$328	$319	$165	$170	$297	$163	$116	$397
Permanent Partial Disabilities									
Number of Cases	49,866	1,893	4,437	2,972	19,702	4,398	2,332	3,222	11,110
Average Compensation	$699	$1,596	$1,135	$746	$366	$1,236	$707	$257	$878
All Types (Cases)	100%	100%	100%	100%	100%	100%	100%	100%	100%
Handling Objects	21	7	13	20	26	10	22	56	11
Falls	16	1	30	14	5	47	35	3	16
Machinery	25	13	11	25	39	5	8	7	12
Vehicles	8	2	13	8	7	17	11	5	13
Using Hand Tools	8	28	2	8	10	2	3	5	11
Falling Objects	8	14	3	4	4	10	13	20	18
All Other Types	14	35	8	21	9	9	8	4	19
Temporary Disabilities									
Number of Cases	179,462	7,278	16,480	15,873	31,401	26,206	15,123	7,823	59,278
Average Compensation	$92	$28	$88	$54	$41	$120	$74	$56	$134
All Types (Cases)	100%	100%	100%	100%	100%	100%	100%	100%	100%
Handling Objects	25	3	20	20	27	12	20	33	38
Falls	19	1	26	8	2	36	13	3	22
Machinery	9	5	6	10	21	3	4	4	3
Vehicles	8	1	11	6	8	12	10	8	12
Using Hand Tools	8	10	8	16	19	6	8	7	4
Falling Objects	11	53	7	7	9	14	23	39	10
All Other Types	20	27	22	33	14	17	23	6	11

Agency and Accident Type, Compensated Occupational Injuries

Source: National Safety Council

Agency	Per Cent of Total	Total All Types	Striking Against	Struck By	Caught In or Between	Fall on Same Level	Fall to Different Level	Slip and Over-Exertion
Total All Agencies	100.00%	100%	15%	28%	18%	6%	8%	17%
Machinery	12.34	100%	22	20	51	*	1	4
Punch press	1.15	100%	4	8	87	*	*	1
Grinding wheel	1.03	100%	40	32	25	*	*	2
Wood saw, band and circ.	.91	100%	59	20	21	..	..	1
Lathe	.80	100%	24	28	42	*	*	4
Other	8.45	100%	19	18	54	1	1	5
Vehicles	11.14	100%	17	26	24	2	13	13
Motor vehicle	5.45	100%	23	27	13	2	18	8
Hand and foot operated	2.35	100%	11	42	20	3	3	21
Railway car	.86	100%	15	17	26	4	28	9
Other	2.48	100%	11	14	50	1	7	16
Working surfaces	9.51	100%	3	4	*	49	23	21
Floor	3.08	100%	3	*	1	72	2	22
Stairway	1.72	100%	2	*	*	18	65	17
Staging and scaffold	.73	100%	2	2	1	2	90	3
Other	3.98	100%	3	7	1	52	13	24
Chemicals	6.54	100%	*	4	*	*	*	..
Molten metal	1.00	100%	*	*	..	*	..	..
Other	5.54	100%	*	5	*	*	*	..
Hand tools, no mech. power	6.15	100%	10	63	6	2	*	16
Knife	.80	100%	10	90	*	*	..	*
Hammer	.73	100%	2	79	3	*	..	4
Other	4.62	100%	12	56	8	2	*	20
Hoisting apparatus	1.49	100%	4	46	39	1	5	4
Hand tools, power-operated	.95	100%	5	52	12	2	*	12
Conveyors	.85	100%	11	27	49	1	3	8
Elevators	.53	100%	5	15	46	2	23	6
Electric apparatus	.43	100%	4	7	8	4	4	11
Pumps and prime movers	.35	100%	7	36	37	1	2	14
Mech. power transm. app.	.13	100%	5	16	68	1	3	6
Boilers and pressure vessels	.12	100%	10	23	15	1	7	12
Miscellaneous agencies	49.47	100%	17	34	14	2	8	22
Metal-sheet, plate, rod, etc.	9.60	100%	17	43	20	1	*	19
Box, bench, chair, table	3.46	100%	20	20	9	3	7	41
Bricks, rocks, stones, etc.	2.90	100%	5	60	19	1	*	15
Lumber and woodworking material	2.43	100%	23	39	13	4	1	20
Ladder	1.76	100%	5	4	1	1	80	9
Nails, spikes, tacks, etc.	.79	100%	88	11	..	1	*	*
Dust, foreign particals—eye inj.	.78	100%	..	99	*	*	.....	..
Other	28.75	100%	18	28	13	3	8	24

Source: Cases compensated by New York, first six months 1942; Ohio, 1942; Pennsylvania, 1941; Wisconsin, 1942—total 185,004 cases. Some details partially estimated.
* Less than 0.5%.

Metal Mining
Employment, Hours and Earnings

Source: Bureau of Labor Statistics

	All Employees Number (thousands)	Production and Related Workers Number (thousands)	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings
1947	96.8	87.5	$54.63	41.8	$1.307
1948	98.5	88.6	60.80	42.4	1.434
1949					
Jan.	98.2	88.3	64.75	42.1	1.538
Feb.	101.1	91.0	64.74	42.4	1.527
Mar.	102.0	92.0	66.16	43.3	1.528
Apr.	103.1	92.7	64.71	42.6	1.519
May	101.4	90.9	63.72	42.2	1.510
June	100.3	89.5	60.53	40.6	1.491
July	95.2	83.9	58.86	39.5	1.490
Aug.	94.6	83.4	58.66	39.5	1.485
Sept.	92.0	.....	.....	.....	.....

Fabricated Metal Products
Employment, Hours and Earnings

Source: Bureau of Labor Statistics

	All Employees Number (thousands)	Production and Related Workers Number (thousands)	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings
1947	985	837	$52.06	40.8	$1.276
1948	976	812	56.88	40.6	1.396
1949					
Jan.	932	767	58.23	40.1	1.452
Feb.	917	752	57.72	39.7	1.454
Mar.	890	729	57.35	39.5	1.452
Apr.	867	706	56.19	38.7	1.452
May	843	683	56.67	39.0	1.453
June	836	679	57.39	39.2	1.464
July	828	672	57.80	39.4	1.467
Aug.	842	684	58.13	39.6	1.468
Sept.	864	.....	.....	.....	.....

Primary Metal Industries
Employment, Hours, and Earnings

Source: Bureau of Labor Statistics

	All Employees	Production and Related Workers			
	Number (thousands)	Number (thousands)	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings
1947	1,231	1,073	$55.24	39.8	$1.388
1948	1,247	1,083	61.03	40.1	1.522
1949:					
Jan.	1,257	1,090	63.72	40.0	1.593
Feb.	1,245	1,077	63.16	39.8	1.587
Mar.	1,229	1,062	61.70	39.0	1.582
Apr.	1,195	1,028	60.83	38.4	1.584
May	1,158	991	60.08	38.0	1.581
June	1,135	971	60.02	37.7	1.592
July	1,095	933	58.63	36.9	1.589
Aug.	1,086	926	59.48	37.6	1.582
Sept.	1,105	942	.....	....	.....

Federal Civilian Employment

Source: Bureau of Labor Statistics

Year and Month	All Branches	Executive, Total	Legislative	Judicial
	Total (including areas outside continental United States)			
1947.....	2,153,170	2,142,825	7,127	3,218
1948.....	2,066,545	2,055,790	7,273	3,482
1949: Jan....	2,089,545	2,078,593	7,414	3,538
Feb....	2,089,040	2,078,068	7,420	3,552
Mar...	2,089,806	2,078,786	7,482	3,558
Apr....	2,095,814	2,084,764	7,478	3,572
May...	2,106,927	2,095,887	7,480	3,560
June...	2,114,767	2,103,698	7,498	3,571
July...	2,106,242	2,095,158	7,507	3,579
Aug....	2,095,547	2,084,118	7,842	3,587
Sept...	2,081,800	2,070,276	7,924	3,600
	Continental United States			
1947.....	1,893,875	1,883,600	7,127	3,148
1948.....	1,847,232	1,836,550	7,273	3,409
1949: Jan....	1,895,969	1,885,092	7,414	3,463
Feb....	1,897,665	1,886,769	7,420	3,476
Mar...	1,897,224	1,886,261	7,482	3,481
Apr....	1,905,131	1,894,158	7,478	3,495
May...	1,918,278	1,907,309	7,480	3,489
June...	1,929,461	1,918,469	7,498	3,494
July...	1,925,251	1,914,242	7,507	3,502
Aug....	1,920,249	1,906,897	7,842	3,510
Sept...	1,912,222	1,900,775	7,924	3,523

Durable Goods Industries
Employment, Hours and Earnings

Source: Bureau of Labor Statistics

	All Employees	Production and Related Workers			
	Number (thousands)	Number (thousands)	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings
1947	8,373	7,010	$52.46	40.6	$1.292
1948	8,315	6,909	57.11	40.5	1.410
1949:					
Jan.	8,044	6,840	58.83	40.1	1.467
Feb.	7,923	6,523	58.49	39.9	1.466
Mar.	7,819	6,417	57.83	39.5	1.464
Apr.	7,656	6,262	57.21	39.0	1.467
May	7,441	6,057	57.21	39.0	1.467
June	7,396	6,021	57.86	39.2	1.476
July	7,285	5,891	57.35	38.8	1.478
Aug.	7,305	5,946	57.74	39.2	1.473
Sept.	7,391	6,043	.....	....	.....

Primary Smelting, Refining of Copper, Lead and Zinc
Hours and Earnings

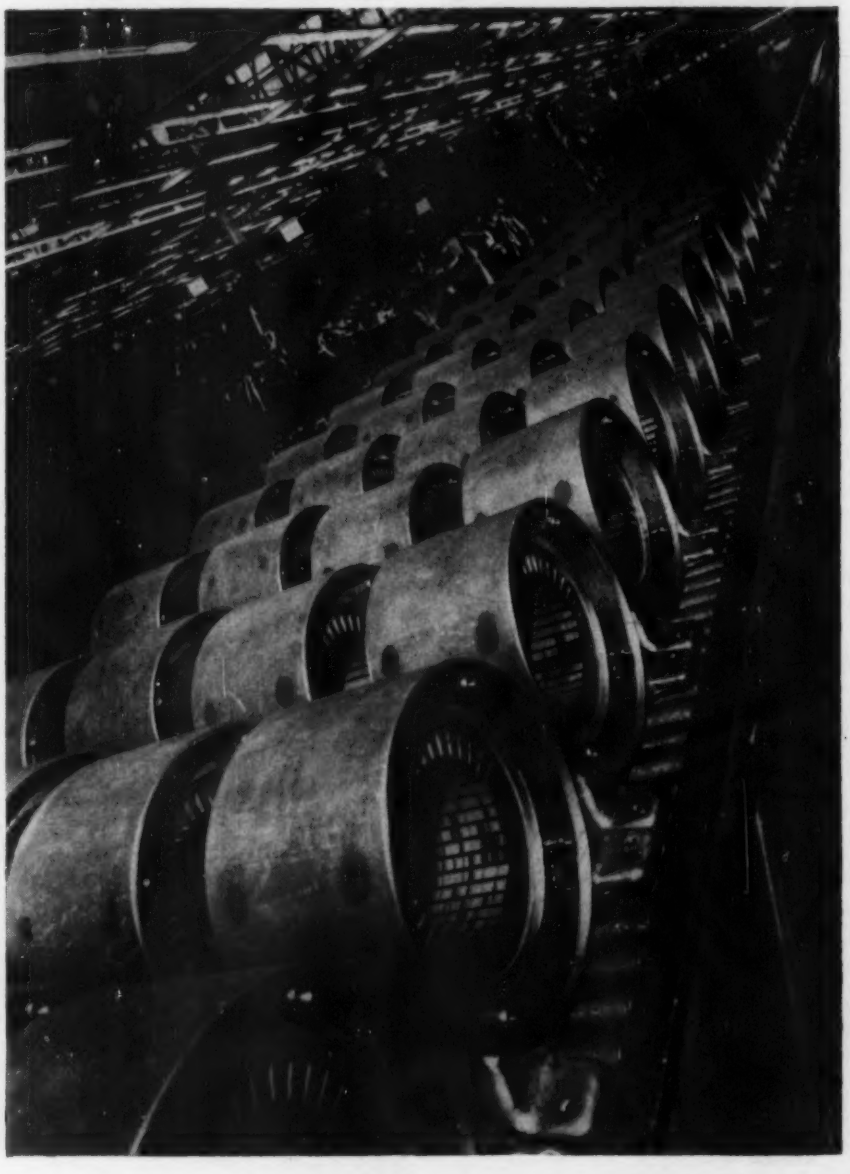
Source: Bureau of Labor Statistics

	Production and Related Workers		
	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings
1947.....	$51.41	40.9	$1.257
1948.....	57.14	40.9	1.397
1949			
January.....	61.55	40.9	1.505
February.....	60.75	40.8	1.489
March.....	60.53	40.9	1.480
April.....	61.18	41.2	1.485
May.....	60.22	40.5	1.487
June.....	59.85	40.3	1.485
July.....	57.77	38.8	1.489
August.....	56.59	39.0	1.451

MANUFACTURING
Employment and Wages

Source: Bureau of Labor Statistics

	All Employees	Production and Related Workers					
			Indexes (1939 Averages = 100)				
	Number (thousands)	Number (thousands)	Employment	Payroll	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings
1939.....	10,078	8,192	100.0	100.0	$23.86	37.7	$0.633
1940.....	10,780	8,811	107.5	113.6	25.20	38.1	.661
1941.....	12,974	10,877	132.8	184.9	29.58	40.6	.729
1942.....	15,051	12,854	156.9	241.5	36.65	42.9	.853
1943.....	17,381	15,014	183.3	331.1	43.14	44.9	.961
1944.....	17,111	14,607	178.3	343.7	46.08	45.2	1.019
1945.....	15,302	12,859	157.0	293.5	44.39	43.4	1.023
1946.....	14,461	12,105	147.8	271.1	43.74	40.4	1.084
1947.....	15,247	12,794	156.2	326.9	49.97	40.4	1.237
1948.....	15,266	12,717	155.2	351.4	54.14	40.1	1.350
1949: January.....	14,782	12,201	148.9	345.9	55.50	39.5	1.405
February.....	14,649	12,074	147.4	340.4	55.20	39.4	1.401
March.....	14,475	11,904	145.3	332.8	54.74	39.1	1.400
April.....	14,177	11,616	141.8	319.2	53.80	38.4	1.401
May.....	13,877	11,324	.....	.....	54.08	38.6	1.401
June.....	13,885	11,335	.....	.....	54.55	38.8	1.406
July.....	13,755	11,206	.....	.....	54.67	38.8	1.409
August.....	14,088	11,542	.....	.....	54.66	39.1	1.398
Sept.....	14,322	11,778	.....	.....	.....	.....	.....



Metal Industry Facts

Labor
Productivity
Safety

PRODUCTIVITY—MINING INDUSTRIES

Indexes of Output per Man-Hour and Unit Labor Cost in Selected Mining Industries (1939 = 100)

Source: Bureau of Labor Statistics

Period	Mining[1]		Bituminous Coal Mining		Anthracite Mining		Crude Petroleum, Natural Gas, and Natural Gasoline	Iron Mining		Copper Mining			Lead and Zinc Mining		
										Recoverable Metal		Ore	Recoverable Metal		Ore
	Output Per Man-Hr	Unit Labor Cost[2]	Output Per Man-Hr	Unit Labor Cost	Output Per Man-Hr	Unit Labor Cost	Output Per Man-Hr[3]	Output Per Man-Hr	Unit Labor Cost	Output Per Man-Hr	Unit Labor Cost	Output Per Man-Hr	Output Per Man-Hr	Unit Labor Cost	Output Per Man-Hr
1935	84.9	.....	82.4	98.9	79.3	110.4	89.0	87.7	.....	97.5	.....	65.3	99.5	.....	88.7
1936	86.6	.....	86.3	100.3	86.2	103.5	83.3	98.8	.....	110.2	.....	84.1	93.7	.....	94.9
1937	88.0	.....	88.1	108.0	87.4	108.2	84.9	105.9	.....	101.0	.....	90.2	90.1	.....	96.4
1938	90.1	.....	92.9	108.2	97.9	104.0	84.3	70.2	.....	80.2	.....	83.1	97.6	.....	93.3
1939	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1940	102.1	97.6	104.0	96.8	98.5	100.9	.....	117.4	86.4	103.2	102.5	107.2	96.4	110.0	99.5
1941	103.9	107.8	104.4	108.9	100.5	100.7	.....	117.3	97.5	99.3	115.2	107.0	98.3	120.1	107.7
1942	104.0	120.7	102.9	119.7	92.1	118.5	.....	107.8	112.0	101.6	129.4	113.9	90.4	152.4	102.3
1943	101.7	137.8	98.7	136.9	87.5	131.7	.....	96.9	132.6	103.6	142.3	122.9	80.1	187.7	101.1
1944	105.0	147.1	102.5	149.0	92.0	137.8	.....	99.7	131.3	113.1	134.2	140.4	87.5	182.0	120.4
1945	106.7	149.8	105.7	150.0	89.2	150.4	.....	110.5	125.1	114.1	135.5	151.0	92.0	178.5	132.0
1946	110.1	160.1	114.2	153.1	93.5	171.7	.....	104.9	149.6	99.4	172.2	134.3	85.1	210.5	126.4
1947	114.3	180.4	120.8	172.8	89.1	202.4	.....	107.5	162.2	108.7	179.4	.....	90.9	225.5	.....

[1] The indexes of output per man-hour for 1935-47 cover six of the principal mining industries as shown. Crude petroleum, natural gas, and natural gasoline, for which no unit labor costs are available, are excluded from the index of unit labor cost. The index of production is an average of the separate production indexes weighted with current-year man-hours; the indexes of man-hours and pay rolls are based on Bureau of Labor Statistics data. The series for 1915-34 is based on an index covering almost all mining industries, prepared by the WPA National Research Project, Production, Employment, and Productivity in the Mineral Extractive Industries, 1880-1938. The indexes of output per man-hour and unit labor cost include tentative revisions made in August 1947. The revisions result from tentative adjustments in the Bureau's employment series, the data published by the Bureau of Employment Security of the Federal Security Agency.

[2] Five mining industries; excludes crude petroleum, natural gas and natural gasoline for which no unit labor costs are available.

[3] Pending further review, the tentative revisions for crude petroleum, natural gas, and natural gasoline for the years 1940-47 were not considered sufficiently reliable for publication. Data for this industry were considered satisfactory for inclusion in the combined indexes for the six principal mining industries.

CHANGES IN INJURY RATES BY INDUSTRIES, 1935-1939 TO 1948

(Index numbers above 100 indicate percentage increases from base period; below 100, decreases)

Source: National Safety Council

Industry	Base Period	Frequency Rate Index Numbers					Frequency Change 1947–48	Severity Rate Index Numbers					Severity Change 1947–48
		1941	1943	1945	1947	1948		1941	1943	1945	1947	1948	
All Reporting Industries	1935-39	117	111	104	101	88	−13%	99	77	75	79	72	− 9%
Aircraft manufacturing	1941	100	135	99	97	62	−36%	100	157	193	137	147	+ 7%
Air transport	1942	...	169	131	126	116	− 8%	...	180	114	141	125	−11%
Automobile	1935-39	72	98	98	96	81	−16%	79	78	77	81	80	− 2%
Cement	1935-39	111	144	148	134	126	− 6%	78	80	67	99	96	− 4%
Chemical	1935-39	105	111	111	98	83	−15%	107	93	88	76	74	− 2%
Clay Products	1935-39	168	184	105	131	106	−19%	129	174	83	180	153	−15%
Communications	1935-39	95	61	55	55	48	−13%	117	38	11	23	25	+13%
Construction	1935-39	105	60	77	94	64	−32%	74	76	69	81	77	− 5%
Electrical Equipment	1935-39	101	125	111	105	97	− 8%	86	83	76	78	78	0
Electric Utilities	1935-39	108	107	119	137	131	− 4%	78	94	78	100	88	−12%
Food	1935-39	99	133	140	126	111	−11%	114	102	110	102	96	− 6%
Foundries	1935-39	89	112	92	105	88	−16%	91	108	130	92	119	+29%
Gas Utilities	1935-39	98	92	105	156	141	−10%	89	93	105	118	105	−11%
Glass	1935-39	84	128	108	125	109	−13%	68	111	112	90	66	−27%
Leather	1935-39	115	124	98	121	112	− 8%	141	167	122	55	83	+50%
Lumber	1935-39	96	97	119	110	90	−18%	120	105	117	121	107	−11%
Machinery	1935-39	116	194	160	157	139	−11%	100	99	81	104	106	+ 2%
Marine Transportation	1935-39	161	205	238	118	104	−12%	96	126	104	75	61	−19%
Meat Packing	1935-39	61	99	115	86	69	−20%	118	89	75	62	53	−16%
Mining	1935-39	93	106	129	127	105	−17%	95	86	105	74	72	− 2%
Misc. Iron and Steel Products	1935-39	127	120	116	100	107	+ 7%	129	97	113	80	101	+26%
Non-Ferrous Metals and Products	1935-39	128	190	166	136	118	−13%	90	97	98	82	72	−13%
Petroleum	1935-39	86	94	105	96	90	− 7%	88	79	81	81	71	−13%
Printing and Publishing	1935-39	105	149	133	117	105	−11%	70	152	82	128	86	−33%
Pulp and Paper	1935-39	104	129	123	110	91	−17%	99	102	85	83	68	−18%
Quarry	1935-39	143	137	79	137	153	+12%	94	129	34	94	86	− 8%
Railroad Equipment	1935-39	88	155	166	67	62	− 6%	138	130	93	72	81	+14%
Rubber	1935-39	103	141	148	114	106	− 8%	85	104	107	96	89	− 7%
Service	1935-39	132	141	158	110	88	−20%	165	102	748	73	291	+290%
Sheet Metal Products	1935-39	109	79	126	98	74	−24%	81	58	122	102	88	−13%
Shipbuilding	1935-39	185	226	148	145	96	−34%	94	101	83	157	80	−49%
Steel	1935-39	90	95	93	78	76	− 4%	90	96	90	82	85	+ 3%
Textile	1935-39	134	177	158	116	116	0	91	131	117	93	100	+ 7%
Transit	1935-39	95	129	170	186	114	−31%	75	87	97	88	63	−28%
Wood Products	1935-39	138	154	194	186	155	−16%	99	125	179	189	145	−23%

CONSUMERS' PRICE INDEX

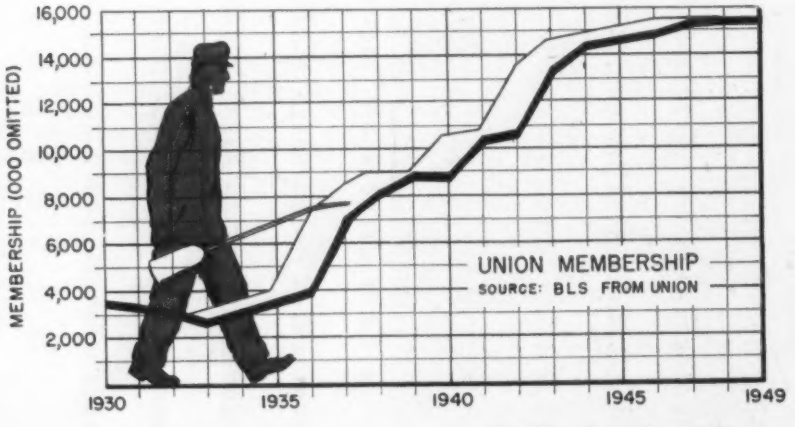
For Moderate-Income Families in Large Cities, by Group of Commodities
(1935-39 = 100)
Source: Bureau of Labor Statistics

Period	All Items	Food	Apparel	Rent	Fuel, Electricity and Ice			House furnishings	Miscellaneous
					Total	Gas and Electricity	Other Fuels and Ice		
1913	70.7	79.9	69.3	92.2	61.9	.....	.....	59.1	50.9
1914	71.8	81.8	69.8	92.2	62.3	.....	.....	60.7	51.9
1915	72.5	80.9	71.4	92.9	62.5	.....	.....	63.6	53.6
1916	77.9	90.8	78.3	94.0	65.0	.....	.....	70.9	56.3
1917	91.6	116.9	94.1	93.2	72.4	.....	.....	82.8	65.1
1918	107.5	134.4	127.5	94.9	84.2	.....	.....	106.4	77.8
1919	123.8	149.8	168.7	102.7	91.1	.....	.....	134.1	87.6
1920	143.3	168.8	201.0	120.7	106.9	.....	.....	164.6	100.5
1921	127.7	128.3	154.8	138.6	114.0	.....	.....	138.5	104.3
1922	119.7	119.6	125.6	142.7	113.1	.....	.....	117.5	101.2
1923	121.9	124.0	125.9	146.4	115.2	.....	.....	126.1	100.8
1924	122.2	122.8	124.9	151.6	113.7	.....	.....	124.0	101.4
1925	125.4	132.9	122.4	152.2	115.4	.....	.....	121.5	102.2
1926	126.4	137.4	120.6	150.7	117.2	.....	.....	118.8	102.6
1927	124.0	132.3	118.3	148.3	115.4	.....	.....	115.9	103.2
1928	122.6	130.6	116.5	144.8	113.4	.....	.....	113.1	103.8
1929	122.5	132.5	115.3	141.4	112.5	.....	.....	111.7	104.6
1930	119.4	126.0	112.7	137.5	111.4	.....	.....	108.9	105.1
1931	108.7	103.9	102.6	130.3	108.9	.....	.....	98.0	104.1
1932	97.6	86.5	90.8	116.9	103.4	.....	.....	85.4	101.7
1933	92.4	84.1	87.9	100.7	100.0	.....	.....	84.2	98.4
1934	95.7	93.7	96.1	94.4	101.4	.....	.....	92.8	97.9
1935	98.1	100.4	96.8	94.2	100.7	102.8	98.8	94.8	98.1
1936	99.1	101.3	97.6	96.4	100.2	100.8	99.9	96.3	98.7
1937	102.7	105.3	102.8	100.9	100.2	99.1	101.3	104.3	101.0
1938	100.8	97.8	102.2	104.1	99.9	99.0	100.8	103.3	101.5
1939	99.4	95.2	100.5	104.3	99.0	98.9	99.3	101.3	100.7
1940	100.2	96.6	101.7	104.6	99.7	98.0	101.6	100.5	101.1
1941	105.2	105.5	106.3	106.2	102.2	97.1	107.4	107.3	104.0
1942	116.5	123.9	124.2	108.5	105.4	96.7	113.9	122.2	110.9
1943	123.6	138.0	129.7	108.0	107.7	96.1	119.0	125.6	115.8
1944	125.5	136.1	138.8	108.2	109.8	95.8	123.4	138.4	121.3
1945	128.4	139.1	115.9	108.3	110.3	95.0	125.1	145.8	124.1
1946	139.3	159.6	160.2	108.6	112.4	92.4	132.0	159.2	128.8
1947	159.2	193.8	185.8	111.2	121.1	92.0	.....	184.4	139.9
1948: Jan.	168.8	209.7	192.1	115.9	129.5	93.1	.....	192.3	146.4
Feb.	167.5	204.7	195.1	116.0	130.0	93.2	.....	193.0	146.4
Mar.	166.9	202.3	196.3	116.3	130.3	93.8	.....	194.9	146.2
Apr.	169.3	207.9	196.4	116.3	130.7	93.9	.....	194.7	147.8
May	170.5	210.9	197.5	116.7	131.8	94.1	.....	193.6	147.5
June	171.7	214.1	196.9	117.0	132.6	94.2	.....	194.8	147.5
July	173.7	216.8	197.1	117.3	134.8	94.4	.....	195.9	150.8
Aug.	174.5	216.6	199.7	117.7	136.8	94.5	.....	196.3	152.4
Sept.	174.5	215.2	201.0	118.5	137.3	94.6	.....	198.1	152.7
Oct.	173.6	211.5	201.6	118.7	137.8	95.4	.....	198.8	153.7
Nov.	172.2	207.5	201.4	118.8	137.9	95.4	.....	198.7	153.9
Dec.	171.4	205.0	200.4	119.5	137.	95.3	.....	198.6	154.0
1949: Jan.	170.9	204.8	196.5	119.7	138.2	95.5	.....	198.5	154.1
Feb.	169.0	199.7	195.1	119.9	138.8	96.1	.....	195.6	154.1
Mar.	169.5	201.6	193.9	120.1	138.9	96.1	.....	193.3	154.4
Apr.	169.7	202.8	192.5	120.3	137.4	96.8	.....	191.9	154.6
May	169.2	202.4	191.3	120.4	135.4	96.9	.....	189.5	154.5
June	169.6	204.3	190.3	120.6	135.6	96.9	.....	187.3	154.2
July	168.5	201.7	188.5	120.7	135.6	96.9	.....	186.6	154.3
Aug.	168.8	202.6	187.4	120.8	135.8	97.1	.....	184.8	154.8
Sept.	.....	.....	.....	.....	.....	.....	.....	.....	.....

MEMBERSHIP OF UNIONS
1897-1947

Source: Bureau of Labor Statistics

	AFL	CIO	Independent	Total All Unions
1897	265	.....	175	440
1898	278	.....	189	467
1899	349	.....	201	550
1900	548	.....	243	791
1901	788	.....	270	1,058
1902	1,024	.....	311	1,335
1903	1,466	.....	358	1,824
1904	1,676	.....	391	2,067
1905	1,494	.....	424	1,918
1906	1,454	.....	438	1,892
1907	1,539	.....	538	2,077
1908	1,587	.....	505	2,092
1909	1,483	.....	482	1,965
1910	1,562	.....	554	2,116
1911	1,762	.....	556	2,318
1912	1,770	.....	635	2,405
1913	1,996	.....	665	2,661
1914	2,021	.....	626	2,647
1915	1,946	.....	614	2,560
1916	2,073	.....	649	2,722
1917	2,371	.....	605	2,976
1918	2,726	.....	642	3,368
1919	3,260	.....	786	4,046
1920	4,079	.....	955	5,034
1921	3,907	.....	815	4,722
1922	3,196	.....	754	3,950
1923	2,926	.....	703	3,629
1924	2,866	.....	683	3,549
1925	2,877	.....	689	3,566
1926	2,804	.....	788	3,592
1927	2,813	.....	787	3,600
1928	2,896	.....	671	3,567
1929	2,934	.....	691	3,625
1930	2,961	.....	671	3,632
1931	2,890	.....	638	3,526
1932	2,532	.....	694	3,226
1933	2,127	.....	730	2,857
1934	2,608	.....	641	3,249
1935	3,045	.....	683	3,728
1936	3,422	.....	742	4,164
1937	2,861	3,718	639	7,218
1938	3,623	4,038	604	8,265
1939	4,006	4,000	974	8,980
1940	4,247	3,625	1,072	8,944
1941	4,569	5,000	920	10,489
1942	5,483	4,195	1,084	10,762
1943	6,564	5,285	1,793	13,642
1944	6,807	5,935	1,879	14,621
1945	6,931	6,000	1,865	14,796
1946	7,152	6,000	1,822	14,974
1947	7,578	6,000	1,836	15,414
1948	7,200	6,000	.....	15,600



Continued on Page 240

Non-durable Goods Industries
Employment, Hours and Earnings

Source: Bureau of Labor Statistics

	All Employees	Production and Related Workers			
	Number (thousands)	Number (thousands)	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings
1947	6,874	5,784	$46.96	40.1	$1.171
1948	6,970	5,808	50.61	39.6	1.278
1949:					
Jan.	6,378	5,561	51.35	38.7	1.327
Feb.	6,726	5,551	51.33	38.8	1.323
Mar.	6,658	5,487	51.07	38.6	1.323
Apr.	6,521	5,354	49.87	37.6	1.321
May	6,436	5,287	50.41	38.1	1.323
June	6,489	5,314	51.01	38.5	1.325
July	6,500	5,315	51.68	38.8	1.332
Aug.	6,783	5,596	.....	....	.....

How to get a fire-extinguishing system FREE!

An auto manufacturer had a mean fire hazard in some automatic screw machines.

The job called for a light oil coolant. With its low flash point the oil frequently caught fire from heat generated by machining.

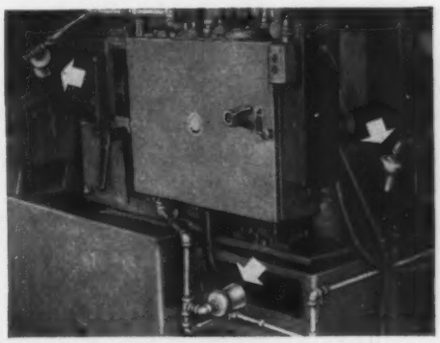
The extinguishers used by the company killed these repeated fires successfully. But the extinguisher chemical spoiled the coolant—left a mess on the machine. And downtime needed to clean the machine and replace oil after a fire was never less than 16 hours—often ran to 2 or 3 days.

Kidde extinguishing systems were installed on all these screw machines. They detect and kill fires automatically. The dry clean CO_2 discharged by the *Kidde* systems doesn't mess up the machine. It evaporates from the coolant oil, leaving no trace. After a fire, *downtime is 1 hour, no oil need be replaced.*

The *Kidde* systems cost $800 per machine. *The company says they paid for themselves in the first month!*

That's how our friends, the auto manufacturers, figure they got the *Kidde* installation free. You'd figure that way, too, wouldn't you?

If you want to know more about *how* such systems work, mail the coupon for literature.



Arrows show location of *Kidde* Multijet Nozzles through which CO_2 is discharged to kill fires starting on automatic screw machine during cutting operations. The CO_2 does the job fast—and clean.

Kidde

Walter Kidde & Company, Inc., 150 Main Street, Belleville 9, N. J.
In Canada: Walter Kidde & Company of Canada, Ltd., Montreal, P. Q.

Walter Kidde & Company, Inc.
150 Main Street, Belleville 9, N. J.

Gentlemen: Please send me descriptive literature on *Kidde* automatic extinguishing systems.

NAME.....

COMPANY.....

ADDRESS.....

CITY.....STATE.....

EMPLOYMENT IN THE METALWORKING INDUSTRY

Metalworking plants with 21 or more plant workers . . . Presented in 3-digit major industry groups as defined in the new government Standard Industrial Classification Manual

Source: THE IRON AGE Basic Marketing Data

Titles of 3-Digit Groups	Number of Workers in Plants Employing Over 21 Plant Workers	Number of Plants Employing Over 21 Plant Workers	Number Plants by Size: With Over 100 Workers	With 51 to 100 Workers	With 21 to 50 Workers	3-Digit Govt. Code
33—Primary Metals						
Blast Furnaces, Steel Works and Rolling Mills	541,536	219	209	5	5	331
Iron and Steel Foundries	191,698	985	455	257	273	332
Smelting and Refining of Nonferrous Metals	46,625	114	74	15	25	333-4
Rolling, Drawing and Alloying Nonferrous Metals	100,826	149	92	27	30	335
Nonferrous Foundries	50,119	368	100	81	187	336
Miscellaneous Primary Metal	·92,709	423	192	76	155	339
34—Fabricated Metal Products						
Tin Cans and Tinware	43,806	143	95	23	25	341
Cutlery, Hand Tools and Hardware	143,022	735	275	173	287	342
Heating Apparatus (Except Electrical) and Plumbers Supplies	149,431	651	335	146	170	343
Fabricated Structural Products	197,891	1,663	453	381	829	344
Metal Stamping and Coating	180,704	1,050	318	238	496	346
Lighting Fixtures	26,229	207	55	55	97	347
Fabricated Wire Products	53,590	340	127	82	131	348
Miscellaneous Fabricated Metal Products	101,401	644	222	163	259	349
35—Machinery (Except Electrical)						
Engines and Turbines	72,717	102	66	22	14	351
Agricultural Machinery and Tractors	162,532	418	166	98	154	352
Construction and Mining Equipment	101,966	466	199	104	163	353
Metalworking Machinery	207,448	1,222	380	258	584	354
Special Industry Machinery	179,517	1,054	373	241	440	355
General Industrial Machinery and Equipment	178,577	962	378	217	367	356
Office and Store Machines	100,973	172	99	33	40	357
Service Industry and Household Machines	194,578	412	210	100	102	358
Miscellaneous Machinery Parts	137,514	655	184	133	338	359
36—Electrical Machinery and Equipment						
Electrical Generating Transmission and Industrial Equipment	291,333	645	315	147	163	361
Electrical Appliances (Not elsewhere classified)	61,668	144	71	26	47	362
Insulated Wire and Cable	21,844	48	38	8	2	363
Electrical Equipment for Transportation Equipment	64,649	63	41	8	14	364
Electric Lamps (Bulbs, etc.)	23,251	31	22	2	7	365
Communication Equipment	259,749	339	216	54	69	366
Miscellaneous Electrical Products	25,591	105	46	23	36	369
37—Transportation Equipment						
Motor Vehicles and Equipment for	751,427	817	472	139	206	371
Aircraft and Parts	200,092	138	85	23	30	372
Ship and Boat Building	162,344	147	113	15	19	373
Railroad Equipment	98,236	77	54	13	10	374
Motorcycles, Bicycles and Parts	12,405	35	16	8	11	375
Miscellaneous Transportation Equipment	5,560	30	9	5	16	379
38—Instruments and Photographic Equipment						
Lab. Scientific and Engineering Instruments	11,807	71	22	12	37	381
Mechanical Measuring and Control Instruments	43,928	153	76	30	47	382
Optical Instruments	13,091	15	8	5	2	383
Surgical and Dental Instruments	12,461	79	23	25	31	384
Ophthalmic Goods	6,024	15	9	4	2	385
Photographic Equipment	39,009	56	27	9	20	386
Watches, Clocks, and Clock-operated Devices	36,137	45	33	3	9	387
All Others, including Ordnance and Accessories, Furniture and Fixtures and Miscellaneous Manufacturing Industries (Metal)	295,643	1,371	537	335	499	...
Total for Metalworking Plants over 21 workers	5,691,658	17,578	7,290	3,820	6,468	...

MILITARY PERSONNEL AND PAY

Source: Bureau of Labor Statistics

(000 omitted)

Year and Month	Personnel (average for year or as of first of month): Total	Army	Air Force	Navy	Marine Corps	Coast Guard	Type of Pay: Total	Pay Rolls	Family Allowances	Mustering-out and Leave Payments
1947	1,671	1,059	...	494	98	20	$5,350,396	$3,336,934	$308,220	$1,705,242
1948	1,492	964	...	424	84	20	3,442,961	2,993,124	317,257	132,579
1949: Jan.	1,645	677	412	447	88	22	299,593	265,618	28,709	5,266
Feb.	1,668	712	416	450	88	22	290,041	257,503	28,163	4,376
March	1,682	703	417	451	89	22	289,063	255,340	29,108	4,615
April	1,667	689	417	450	88	23	292,446	258,961	29,037	4,448
May	1,651	673	418	449	87	23	284,790	250,549	29,517	4,724
June	1,639	664	418	447	87	23	291,583	255,996	29,254	5,333
July	1,636	659	419	448	86	24	302,660	270,094	29,050	3,515
Aug.	1,638	655	423	450	86	24	298,608	266,437	28,982	3,189
Sept.	1,629	656	420	444	86	24	302,967	272,239	28,234	2,494

Continued on Page 242

Federal Civilian Pay Rolls

Source: Bureau of Labor Statistics

(000 omitted)

Year and Month	All Branches	Executive, Total	Legislative	Judicial
Total (including areas outside continental United States)				
1947	$5,966,107	$5,922,339	$29,074	$14,694
1948	6,223,486	6,176,414	30,891	16,182
1948: Aug.	543,481	539,396	2,695	1,390
Sept.	547,847	543,700	2,694	1,453
Oct.	533,871	529,761	2,656	1,454
Nov.	550,354	546,252	2,683	1,419
Dec.	624,586	620,396	2,722	1,468
1949: Jan.	538,453	534,443	2,657	1,353
Feb.	518,821	514,865	2,650	1,306
Mar.	576,546	572,328	2,763	1,455
Apr.	546,000	541,967	2,722	1,311
May	562,080	557,889	2,762	1,429
June	574,990	570,757	2,792	1,441
July	540,440	536,210	2,884	1,345
Aug.	574,593	570,083	3,005	1,505
Sept.	547,031	542,606	2,968	1,457
Continental United States				
1947	$5,463,671	$5,420,337	$29,074	$14,260
1948	5,731,115	5,684,494	30,891	15,730
1948: Aug.	501,815	497,769	2,695	1,351
Sept.	506,309	502,201	2,694	1,414
Oct.	491,324	487,255	2,656	1,413
Nov.	509,114	505,052	2,683	1,379
Dec.	581,370	577,220	2,722	1,428
1949: Jan.	499,162	495,191	2,657	1,314
Feb.	481,725	477,807	2,650	1,268
Mar.	534,633	530,456	2,763	1,414
Apr.	504,901	500,907	2,722	1,272
May	522,002	517,853	2,762	1,387
June	533,002	528,810	2,792	1,400
July	500,642	496,451	2,884	1,307
Aug.	533,703	529,235	3,005	1,463
Sept.	508,415	504,031	2,968	1,416

SUGGESTIONS WANTED

How can this Metal Industry Fact Issue be made more helpful to you? The editors will appreciate suggestions from readers.

Metalworking Machinery Industry Employment, Hours, and Earnings

Source: Bureau of Labor Statistics

	All Employees Number (thousands)	Production and Related Workers: Number (thousands)	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings
1947	248.5	196.1	$58.49	42.2	$1.386
1948	239.5	186.6	62.94	42.1	1.495
1949					
Jan.	232.9	179.1	63.73	41.3	1.543
Feb.	226.3	174.5	63.26	41.0	1.543
Mar.	223.2	171.2	62.93	40.6	1.550
Apr.	219.0	167.1	61.26	39.7	1.543
May	212.8	161.1	60.72	39.4	1.541
June	205.9	155.9	59.83	38.8	1.542
July	198.0	149.3	58.91	38.3	1.538
Aug.	193.1	143.7	59.79	38.6	1.549

Rolling Steel DOORS

MAHON STANDARD
POWER OPERATOR 920-P

Manually, Mechanically, or Power Operated

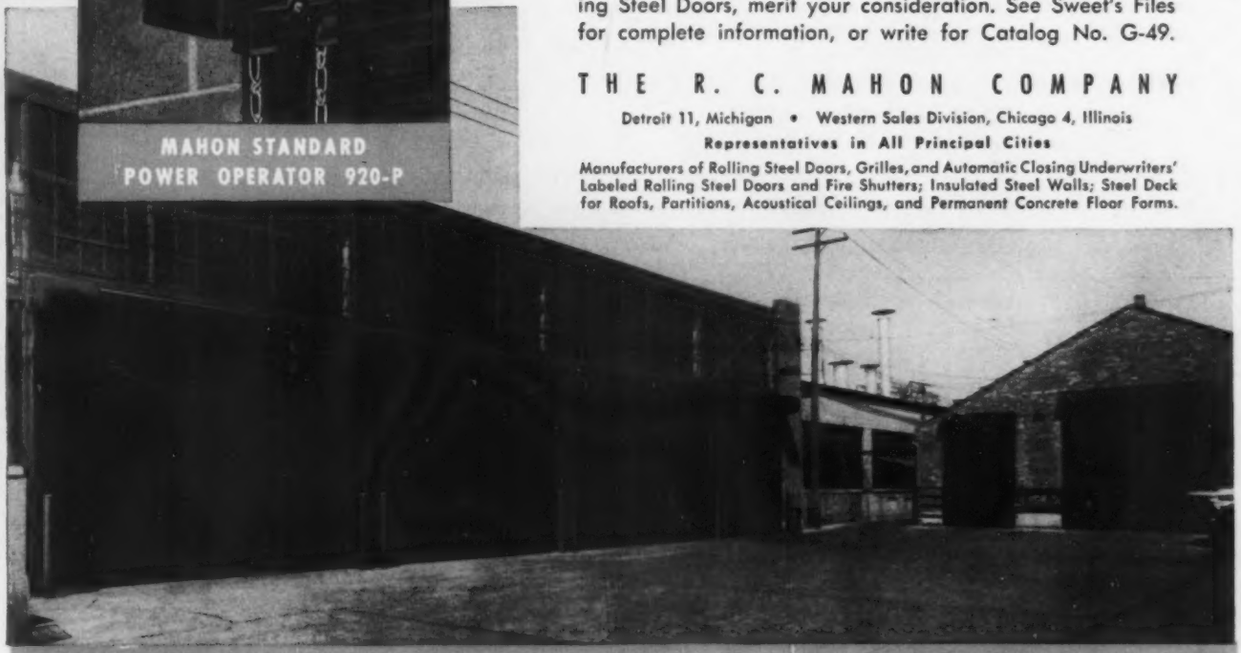
For openings in industrial and commercial buildings, the quick opening, quick closing, vertically acting rolling steel door embodies more desirable features than any other type of door. Open or closed, it occupies no useable space inside or outside the opening . . . its coiling action requires a minimum of headroom above the opening . . . its all steel construction assures permanence and a lifetime of trouble-free service—and, most important, it provides a maximum of protection against intrusion and fire. If you select Mahon Rolling Steel Doors, whether it be for a railroad opening, truck opening, or a firewall opening, you can count on the latest developments in doors of this type . . . more compact and more practical operating devices, curtain slats of Aluminum, Stainless Steel, or Galvanized Steel which has been scientifically cleaned, phosphated, and coated with high temperature oven baked rust inhibiting enamel prior to roll-forming. These, and many other desirable features that characterize Mahon Rolling Steel Doors, merit your consideration. See Sweet's Files for complete information, or write for Catalog No. G-49.

THE R. C. MAHON COMPANY

Detroit 11, Michigan • Western Sales Division, Chicago 4, Illinois

Representatives in All Principal Cities

Manufacturers of Rolling Steel Doors, Grilles, and Automatic Closing Underwriters' Labeled Rolling Steel Doors and Fire Shutters; Insulated Steel Walls; Steel Deck for Roofs, Partitions, Acoustical Ceilings, and Permanent Concrete Floor Forms.



ROLLING STEEL DOORS, SHUTTERS AND GRILLES TO MEET EVERY REQUIREMENT

Mahon Power Operated Rolling Steel Doors installed in six openings in the American Metal Products Company's plant, Detroit, Michigan.

MAHON

COKE AND BYPRODUCTS INDUSTRY

Employment, Hours, and Earnings

Source: Bureau of Labor Statistics

	All Employees	Production and Related Workers			
	Number (thousands)	Number (thousands)	Average Weekly Earnings	Average Weekly Hours	Average Hourly Earnings
1947	18.6	15.9	$52.17	39.4	$1.324
1948	20.0	17.5	58.56	39.7	1.475
1949					
Jan.	20.4	17.9	62.24	40.1	1.552
Feb.	20.5	17.8	61.77	39.9	1.548
Mar.	20.4	17.9	61.18	39.6	1.545
Apr.	20.5	17.9	61.54	39.7	1.550
May	20.7	18.1	60.83	39.6	1.536
June	20.5	18.0	60.72	39.1	1.553
July	19.8	17.3	61.78	39.4	1.568
Aug.	19.5	17.0	60.79	39.4	1.543

COMPLETE INDEX FOR ISSUE

A complete, cross referenced index of all material appearing in all data sections of this issue begins on p. 3.

WORK STOPPAGES—1916-1949

Source: Bureau of Labor Statistics.

	Work Stoppages Beginning in Period				Man-days Idle (all stoppages)			Indexes (1935-39 = 100)		
	Number	Average Duration (calendar days)	Workers Involved: Number (thousands)	Workers Involved: Percent of Total Employed	Number (thousands)	Percent of Estimated Working Time	Per Worker Involved	Work Stoppages	Workers Involved	Man-days Idle
1916	3,789		1,600	8.4				132	142	
1917	4,450		1,230	6.3				155	109	
1918	3,353		1,240	6.2				117	110	
1919	3,630		4,160	20.8				127	370	
1920	3,411		1,460	7.2				119	130	
1921	2,385		1,100	6.4				83	98	
1922	1,112		1,610	8.7				39	143	
1923	1,553		757	3.5				54	67	
1924	1,249		655	3.1				44	58	
1925	1,301		428	2.0				45	38	
1926	1,035		330	1.5				36	29	
1927	707	26.5	330	1.4	26,200	0.37	79.5	25	29	155
1928	604	27.6	314	1.3	12,600	0.17	40.2	21	28	75
1929	921	22.6	289	1.2	5,350	0.07	18.5	32	26	32
1930	637	22.3	183	0.8	3,320	0.05	18.1	22	16	20
1931	810	18.8	342	1.6	6,890	0.11	20.2	28	30	41
1932	841	19.6	324	1.8	10,500	0.23	32.4	29	29	62
1933	1,695	16.9	1,170	6.3	16,900	0.36	14.4	59	104	100
1934	1,856	19.5	1,470	7.2	19,600	0.38	13.4	65	130	116
1935	2,014	23.8	1,120	5.2	15,500	0.29	13.8	70	99	91
1936	2,172	23.3	789	3.1	13,900	0.21	17.6	76	70	82
1937	4,740	20.3	1,860	7.2	28,400	0.43	15.3	166	165	168
1938	2,772	23.6	688	2.8	9,150	0.15	13.3	97	61	54
1939	2,613	23.4	1,170	4.7	17,800	0.28	15.2	91	104	105
1940	2,508	20.9	577	2.3	6,700	0.10	11.6	88	51	40
1941	4,288	18.3	2,360	8.4	23,000	0.32	9.8	150	210	136
1942	2,968	11.7	840	2.8	4,180	0.05	5.0	104	75	25
1943	3,752	5.0	1,980	6.9	13,500	0.15	68.8	131	176	80
1944	4,956	5.6	2,120	7.0	8,720	0.09	4.1	173	188	51
1945	4,750	9.9	3,470	12.2	38,000	0.47	11.0	166	308	224
1946	4,985	24.2	4,600	14.5	116,000	1.43	25.2	174	408	684
1947	3,693	25.6	2,170	6.5	34,600	0.41	15.9	129	193	204
1948	3,419		1,960		34,100	0.37				
1949: Jan.[1]	225		70		800	0.11				
Feb.[1]	225		80		650	0.10				
Mar.[1]	275		500		3,600	0.46				
Apr.[1]	400		175		1,800	0.25				
May[1]	450		250		3,200	0.45				
June[1]	375		575		4,600	0.61				
July[1]	300		110		2,100	0.31				
Aug.[1]	375		150		2,000	0.26				
Sept.[1]	275		510		6,350	0.88				

[1] Estimate.

IRON AND STEEL INDUSTRY

Number of Employees, Average Hours Worked per Week and Average Earnings Per Hr.

Source: American Iron and Steel Institute

(Reported by companies comprising more than 93 pct of the total employment of the iron and steel industry covering only employees directly engaged in the production and sale of iron and steel products)

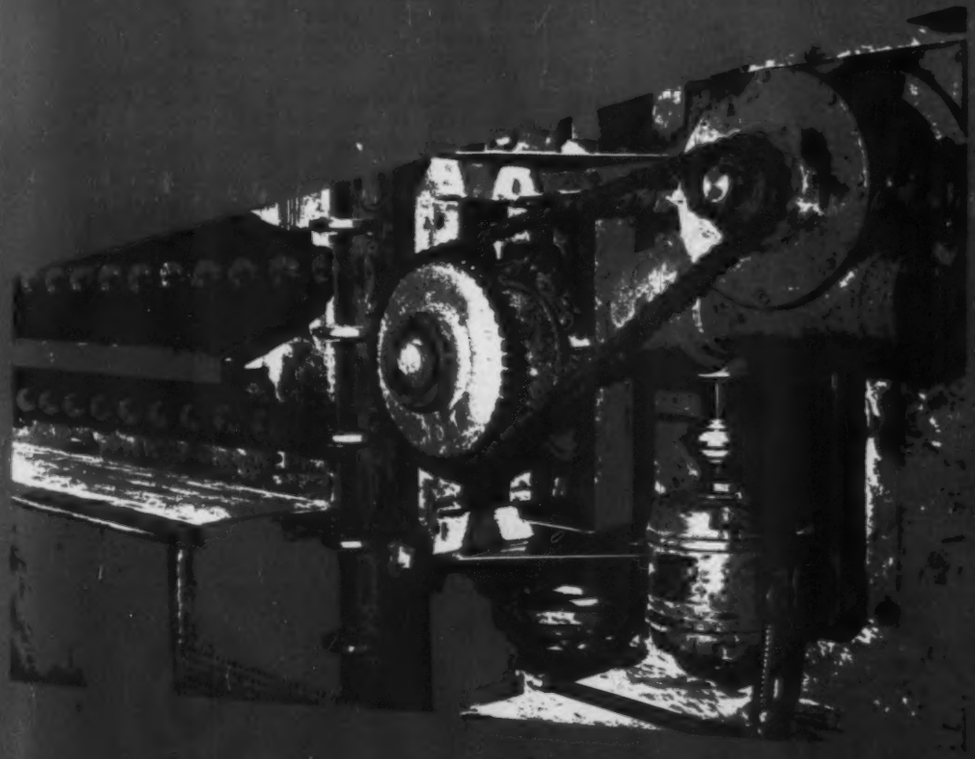
Year	Employees Receiving Wages: Number of Employees	Total Hours Worked	Average hrs. per Week per Employee	Total Wages	Average Earnings per hr. (Cents)	Employees Receiving Salaries: Number of Employees	Total Hours Worked	Total Salaries	All Employees Receiving Wages and Salaries: Number of Employees	Total Hours Worked	Average hrs. per Week per Employee	Total Wages and Salaries	Average Earnings per hr. (Cents)
1949:													
Jan.	515,243	88,918,019	39.0	$152,294,933	171.3	89,571	16,038,227	$36,567,698	604,814	104,956,246	39.2	$188,862,631	179.9
Feb.	521,131	83,592,205	40.1	141,746,551	169.6	89,895	15,969,996	36,733,291	611,026	99,562,201	40.7	178,479,842	179.6
Mar.	519,649	93,555,328	40.6	157,642,202	168.5	90,352	16,403,167	37,204,792	610,001	109,958,495	40.7	194,846,994	177.2
Apr.	514,789	85,037,890	38.5	143,549,213	168.8	90,413	16,055,527	36,938,807	605,202	101,093,417	38.9	180,488,020	178.5
May	506,356	82,965,628	37.0	140,762,665	169.7	90,227	16,043,172	36,482,918	596,583	99,008,800	37.5	177,245,583	179.0
June	493,863	79,743,594	37.6	124,300,871	168.4	90,680	16,074,732	36,688,098	584,543	95,818,326	38.2	170,988,969	178.5
July	481,519	67,707,724	31.8	115,037,392	169.9	89,064	15,728,959	35,741,370	570,583	83,436,683	33.1	150,778,762	180.7
Aug.	475,719	76,977,039	36.5	129,491,063	168.2	88,790	15,824,255	35,685,054	564,509	92,801,294	37.1	165,176,117	178.0
Sept.	473,590	74,563,845	36.8	127,639,137	171.2	88,222	15,568,270	35,507,702	561,812	90,132,115	37.5	163,146,839	181.0
9 mos. avg. or total	500,206	725,061,267	37.5	232,464,027	169.5	89,690	143,706,305	327,549,730	589,897	876,767,487	38.1	1,570,013,757	179.2
1948	503,351	1,028,519,481	39.1	1,675,913,066	162.9	88,196	191,044,219	412,845,319	591,547	1,219,563,700	39.4	2,088,758,385	171.3
1947	489,138	984,410,347	38.6	1,489,531,509	151.3	84,531	183,172,600	368,726,376	573,669	1,167,582,947	39.0	1,858,257,885	159.2
1946	458,259	836,870,389	35.0	1,133,503,371	135.4	79,889	173,301,314	317,760,089	538,148	1,010,171,703	36.0	1,451,263,460	143.7
1945	438,825	1,009,033,709	44.1	1,266,048,553	125.7	76,178	175,093,573	278,038,234	515,003	1,184,127,282	44.1	1,546,086,787	130.6
1944	456,682	1,112,029,921	46.6	1,365,342,486	122.8	76,969	178,320,937	275,170,922	533,651	1,290,350,858	46.3	1,640,513,388	127.1
1943	487,187	1,089,760,555	42.9	1,242,032,184	114.0	77,121	168,264,429	251,002,372	564,308	1,258,024,984	42.8	1,493,034,556	118.7
1942	511,414	1,036,968,871	38.9	1,101,787,008	106.3	71,511	151,390,870	226,941,787	582,925	1,188,359,741	39.1	1,328,728,795	111.8
1941	507,306	1,019,103,012	38.5	980,845,190	96.2	63,430	133,933,316	196,892,173	570,736	1,153,036,328	38.7	1,177,737,363	102.1
1940	453,990	857,770,926	36.1	733,364,058	85.5	57,338	122,522,777	169,864,608	511,328	980,293,703	38.7	903,228,666	92.1
1939	396,220	719,125,101	34.8	608,310,659	84.6	53,421	113,744,629	153,456,397	449,641	832,869,730	35.5	761,767,056	91.5
1938	360,365	518,406,035	27.6	433,372,123	83.6	52,742	107,763,785	143,236,899	413,107	626,169,820	29.1	576,609,022	92.1
1937	479,022	918,354,646	36.8	756,950,364	82.4	55,132	121,459,120	161,161,935	534,154	1,039,813,766	37.3	918,112,299	88.3
1936	429,111	893,745,272	39.8	599,629,059	67.1	45,162	98,673,490	123,280,276	474,273	992,418,762	40.0	722,909,335	72.8
1935	383,855	685,238,237	34.2	448,941,105	65.5	40,437	86,226,092	106,870,413	424,292	771,464,329	34.9	555,811,518	72.0

THE IRON AGE

METAL INDUSTRY FACTS ISSUE

SECTION 6

MATERIAL HANDLING
POWER TRANSMISSION
METAL FINISHING
TESTING AND INSPECTION



PRODUCTION
EMPLOYMENT & WAGES
VALUE OF PRODUCT
MATERIAL PRICES
INDUSTRY ASSOCIATIONS
HIGHLIGHTS OF '49

SPOTLIGHTING 1949

Important Events Briefly Reviewed

Jan. 10—Materials Handling Exposition held at Philadelphia stresses that more than 25 pct of factory payrolls have been devoted to handling, and about 80 pct of all unskilled labor has been engaged in no more than picking things up, moving them, and putting them down again. J. W. Conklin elected president of the institute.

Jan. 13—Ford Instrument Co., Long Islang City, N. Y., merges with Sperry Corp.

Jan. 20—Cover-Rite, Inc., new plate and metal finishing company, opens at Chicago. Westinghouse Electric Corp. announced mass production of Geiger counters. McNeil Machine & Engineering Co., Akron, Ohio, acquires more than 90 pct of the capital stock of Cleveland Crane & Equipment Co.

Jan. 25—Sperry Corp. buys control of Wright's Automatic Machinery Co., Durham, N. C.

Feb. 1—Universal Mfg. Co., New Castle, Pa., and Rundle Mfg. Co., Milwaukee, announce merger.

Feb. 10—Chysler-Amplex opens plant at Detroit to produce Oilite products. David Larkin elected president of the Wire Rope Institute.

Feb. 22—Operating costs of industrial trucks reduced as much as 10 pct by adoption of a truck maintenance program involving a simple control system that insures maximum battery life and maintenance, described in THE IRON AGE.

Mar. 3—New Carnegie-Illinois Steel Corp. 260-ft terne coating line at Gary plant, employing a new electrolytic pickling bath, described in THE IRON AGE.

Mar. 31—Electric Auto-Lite Co. opens new plant for machining, finishing and plating die cast parts at Lockland, Ohio.

Apr. 11—E. H. Snyder elected president of American Zinc Institute, St. Louis. National Assn. of Corrosion Engineers' annual conference and exhibition, Cincinnati. R. B. Mears elected president, receives Whitney award. F. L. LaQue receives Speller award.

Apr. 14—L. W. Ecke elected president of Davidson Enamel Products, Inc., Lima, Ohio.

Apr. 21—Porcelain Enamel Institute announced that the value of porcelain enameled steel plumbing fixtures shipped during the fourth quarter of 1948 increased approximately $1.6 million or 13 pct over the third quarter.

May 4—A. L. Ferguson elected president at semi-annual meeting of the Electrochemical Society, Philadelphia.

May 10—Proposed 130, $210 million belt conveyer between Lake Erie and the Ohio River died in the House Commerce and Transportation Committee of the Ohio legislature.

May 12—International Nickel Co. reports that the U. S. consumed 74 pct of total world nickel produced in 1948.

May 19—J. C. Warner, Carnegie Institute of Technology, elected vice-president and member of board of directors, Electrochemical Society.

June 9—Hooker-Detrex Inc., Niagara Falls, announces plans for building new trichloethylene plant at Ashtabula, Ohio, at cost of over $1.5 million. Yale & Towne Mfg. Co. opens new Pittsburgh facilities combining sales offices with a spare parts and repair depot for mechanical handling equipment.

June 16—Perflow process reported giving 40 to 50 pct reduction in plating time and 25 pct increase in buffing capacity at General Electric Co., Bridgeport plant, in article in THE IRON AGE.

June 27—J. G. Morrow elected president of ASTM at annual meeting, Atlantic City. A. W. Logozzo elected president at annual convention of American Electroplaters' Society, Milwaukee.

July 14—V. M. Darsey and W. R. Cavanagh, Parker Rust Proof Co., receive Sam Tour award of ASTM for paper, "Apparatus and Factors in Salt Fog Testing."

Aug. 4—Torrington Mfg. Co. purchases assets and business of the Burden Co., Los Angeles, for $185,000. Du Pont Co. announces start of construction of Marshall Laboratory in Philadelphia to cost an estimated $2 million.

Aug. 18—Lustron Corp. announced shipment of 42 porcelain enameled steel houses, largest number moved in a single day, to dealers in 14 states. Shipment of 100 houses to individual purchasers established a new high for a single week.

Aug. 25—Gould Storage Battery Corp. starts classes in the care, maintenance, and charging of the storage battery for personnel of companies using motive power storage batteries.

Oct. 4—Industrial Packaging & Material Handling Exposition sets record with 4000 registered visitors.

Oct. 12—96th meeting of Electrochemical Society, Chicago.

Oct. 13—Battelle Memorial Institute reports reductions up to 50 pct in finishings costs with new chemical metal polishing process which eliminates all electric and buffing procedures.

Oct. 19—L. W. Ball elected president of Society for Nondestructive Testing.

Oct. 26—New company, the Colby Steel & Mfg. Co., will take over the construction of heavy duty cranes, marine elevators, and material handling equipment formerly handled by Colby Steel & Engineering Co.

Nov. 3—American Smelting & Refining Co. acquires facilities of Metallurgical Products Co., Philadelphia, to expand production of electroplating anodes.

Dec. 8—R. C. Sell, general traffic manager of the Koehring Co., Milwaukee elected president of the Society of Industrial Packaging and Materials Handling Engineers for 1950 and 1951.

Quick Guide to section No. 6

A complete cross-referenced index is on p. 3.

Metal Industry Facts

Material handling
Power transmission
Metal finishing
Testing and inspection

CONVEYER INDUSTRY

Selected data on size and operations of the industry for 1939 and 1947

(Money figures and man-hours in millions)

Source: Bureau of Census

	1947	1939
Number of establishments	253	118
Production and related workers:		
Number (average for the year)	18,073	5,733
Man-hours (total)	37.9	n.a.
Wages (total)	$55.0	$8.6
Cost of materials, fuel, electricity, and contract work	$104.9	$17.2
Value added by manufacture	$143.5	$22.9
Value of shipments (value of production figures for 1939)	$248.4	$40.1
Expenditures for new plant and equipment	$8.7	n.a.

n.a.—Not Available.

VITREOUS-ENAMELED PRODUCTS

Value of Products Shipped, by Broad Classes of Products: 1947

(Money Figures in Thousands of Dollars)
Source: Bureau of Census

	Shipped by: Vitreous-Enameled Products Industry	Other Industries	All Industries
Total Shipments by the Industry	$74,382	.....	.....
Vitreous-Enameled Products	54,408	$21,951	$76,359
Vitreous-Enameled Cooking and Kitchen Utensils Made from the Establishment's Own Materials	32,092	4,860	36,882
Other Vitreous-Enameled Products Made from the Establishment's Own Materials	22,146	17,063	39,209
Vitreous-Enameled Products, not Reported by Type, Made from the Establishment's Own Materials	170	28	198
Secondary Products	19,007	.....	.....
Receipts for Vitreous-Enameling Utensils and Other Products Owned by Others	7,024	.....	.....
Nonelectric Signs and Other Advertising Displays	1,290	.....	.....
Other Secondary Products (Fluorescent Lighting Equipment, Warm Air Furnaces, etc.)	10,693	.....	.....
Miscellaneous Receipts	967	.....	.....

MECHANICAL MEASURING INSTRUMENT INDUSTRY, SELECTED DATA

(Money figures in millions of dollars)

Source: Dept. of Commerce

Year 1947	United States Total	Calif.	Conn.	Illinois	Mich.	N. J.	N. Y.	Ohio	Penna.	Texas	All Other States
Number of establishments	483	42	20	42	23	34	131	29	40	10	92
All employees:											
Number (average for year)	53,237	2,928	4,804	6,694	2,132	1,596	11,567	2,911	9,456	159	10,992
Salaries and wages, total	$155.6	$8.6	$14.1	$19.7	$5.9	$4.2	$35.5	$9.0	$28.6	$0.4	$29.6
Production and related workers:											
Number (average for year)	40,937	2,313	3,585	5,134	1,685	1,389	8,957	2,064	6,862	117	8,851
Wages (total)	$109.2	$6.1	$10.1	$13.8	$.43	$3.2	$24.7	$6.0	$18.9	$0.2	$21.9
Value added by manufacture*	$245.1	$12.0	$24.2	$30.5	$7.8	$6.4	$55.0	$13.4	$46.4	$0.6	$48.9
Cost of materials, fuel, electricity, and contract work	$131.3	$7.0	$10.4	$17.2	$6.1	$5.3	$25.5	$5.2	$24.3	$0.4	$29.9
Value of products shipped	$376.5	$19.0	$34.6	$47.8	$13.9	$11.8	$80.5	$18.6	$70.6	$0.9	$78.8

* Value of shipments less cost of materials, fuel, electricity and contract work.

INSTRUMENTS INDUSTRY

Quantity and Value of Products, 1947 and 1939
(Money Figures in Thousands of Dollars)

Source: Bureau of Census

	1947 Total Shipments and Interplant Transfers		1939 Total Production for Sale and Interplant Transfers	
	Quantity (Thousand Units)	Value f.o.b. Plant	Quantity (Thousand Units)	Value f.o.b. Plant
Scientific Instruments:				
Laboratory, Scientific and Engineering Instruments (Except Electrical Quantity Measuring)	.....	$68,724	.....	n.a.
Mechanical Measuring Instruments				
Integrating Meters, Nonelectrical Type	.....	63,282	.....	$19,810
Gas Meters	1,355	22,459	769	7,503
Water Meters	1,338	23,246	577	6,680
Other Liquid Meters, Including Gasoline Dispensing	.....	17,557	.....	5,657
Industrial Process Instruments, Including Indicating, Recording and Controlling Instruments (Except Electrical Quantity Measuring and Automotive Types)	.....	191,468	.....	n.a.
Temperature Thermometers:				
Industrial and Laboratory	9,266	12,549	.....	3,859
Temperature Instruments, Other Than Thermometers	.....	74,028	.....	20,076
Pressure and Vacuum Instruments	.....	27,535	.....	n.a.
Fluid Flow and Liquid Instruments	.....	19,211	.....	3,942
Other Industrial Process Instruments (Except Electrical Quantity Measuring and Automotive Types)	.....	36,066	.....	.....
Physical Properties Testing and Inspection Equipment, Including Hardness, Strength of Materials, Wear, Abrasion and Similar Testers	.....	12,668	.....	n.a.
Other Mechanical Measuring and Controlling Instruments	.....	16,258	.....	n.a.
Mechanical Measuring and Controlling Instruments, Not Specified by Kind	.....	12,328	.....	n.a.
Electrical Measuring Instruments:				
Electrical Integrating Instruments	.....	63,650	.....	n.a.
Ac Watt-Hour Meters:				
Single Phase	3,277	44,967	1,896	17,616
Polyphase	211	5,096		
Demand Meters, Including Combined Watt-Hour and Demand Meters (Single and Polyphase)	237	6,862	.....	1,617
Other Electrical Integrating Meters, Including Combined Watt-hour and Time Switch Meters, Dc Watt-hour Meters, Ampere-hour Meters, etc.	.....	2,121		
Parts for Electrical Integrating Instruments, Sold Separately and Integrating Instruments, Not Specified by Type	.....	4,604	.....	n.a.
Electrical Test Equipment	.....	54,805		
Oscilloscopes, High Frequency Type, Designed Primarily for Radio Testing	.....	766		
Other Types of Oscilloscopes and Oscillographs	.....	4,048	.....	n.a.
Volt-Ohm-Milliammeters	.....	2,353		
Electronic Volt-Ohm-Milliammeters	.....	723		
Resistor, Capacitor and Inductor Measuring Equipment	.....	1,653		
Analyzers for Testing Characteristics of Internal Combustion Engines and Auxiliary Equipment	.....	15,193	.....	2,020
Tube Characteristic Measuring Instruments for Receiving Tubes	.....	2,058	.....	584
Micro-Wave Test Equipment	.....	2,512		
Signal Generators	.....	3,744	.....	n.a.
Electrical Test Equipment Not Specified by Kind	.....	9,257		
Parts for Test Equipment Sold Separately	.....	481		
Electrical Measuring Instruments Other than Integrating Instruments and Test Equipment[1]	.....	37,685	.....	n.a.
Indicating Instruments:				
Panel Type Instruments:				
Nominal size 4½ in. and smaller, Excluding Motor Vehicle and Aircraft Type[2]	1,039	8,369	692	2,173
Nominal size larger than 4½ in. Including All Exploded Types, but Excluding Motor Vehicle and Aircraft Type[3]	108	2,155		
Switchboard Type Instruments, 4½ in. Nominal Size and Larger with Accuracy Within ±1 pct of Full Scale	115	3,111	67	1,025
Portable Instruments:				
Industrial Portable Ammeters, Voltmeters, Watt-Varmeters, etc. Including Hook-on and Split Core Current Measuring Types	68	1,659	27	762
Laboratory Type—With accuracy within ±1 pct, Up to 1/10 pct of Full Scale and Better—All Case Sizes	44	2,317	.....	[3]
Other Indicating Instruments, Including Ammeters and Voltmeters for Motor Vehicles but Excluding Electrical Test Equipment	.....	2,502	.....	[3]
Instrument, Meter and Tripping Transformers (Current and Potential)	278	10,628	.....	[3]
Recording Instruments, Excluding Control Types	14	1,911	6	553
Instrument Relays, All Types	40	899	.....	n.a.
Parts for Indicating and Recording Instruments	.....	3,488	.....	n.a.
Indicating and Recording Instruments, Not Specified by Type	.....	458	.....	n.a.
Electrical Measuring Instruments, Not Specified by Type	.....	1,113	.....	n.a.

n.a. Not available.

[1] Instruments designed fundamentally to indicate, measure or record electrical quantities but whose scales may be marked in other than electrical quantities.

[2] Initial accuracy within plus or minus 2 pct of full scale deflection for all types except rectifier types. Initial accuracy for rectifier types within plus or minus 5 pct of full scale deflection.

[3] Motor vehicle meters, laboratory instruments, other electrical indicating instruments, and instrument, meter, and tripping transformers combined to avoid disclosing the operations of individual companies. The combined values of these items in 1939 was $8,943 thousand.

Metal Industry Facts

Material handling
Power transmission
Metal finishing
Testing and inspection

Physical Testing Departments Operated by U. S. Metalworking Plants Employing 21 or More Plant Workers

(Source: THE IRON AGE Basic Marketing Data)

Alabama	16	Nebraska	
Arizona		Nevada	
Arkansas	1	New Hampshire	9
California	138	New Jersey	137
Colorado	11	New Mexico	
Connecticut	93	New York	242
Delaware	8	North Carolina	8
District of Columbia	2	North Dakota	
Florida	4	Ohio	312
Georgia	11	Oklahoma	9
Idaho		Oregon	5
Illinois	280	Pennsylvania	257
Indiana	102	Rhode Island	16
Iowa	29	South Carolina	1
Kansas	14	South Dakota	2
Kentucky	17	Tennessee	20
Louisiana	5	Texas	25
Maine	5	Utah	4
Maryland	25	Vermont	2
Massachusetts	113	Virginia	9
Michigan	197	Washington	18
Minnesota	32	West Virginia	9
Mississippi	3	Wisconsin	91
Missouri	54	Wyoming	
Montana	3	Total	2348

COMPLETE INDEX FOR ISSUE

A complete, cross referenced index of all material appearing in all data sections of this issue begins on p. 3.

INSTRUMENTS INDUSTRY

Detailed Operating Data for 1947

(Money figures in thousands of dollars)

Source: Bureau of Census

	All Establishments	Scientific Instruments	Mechanical Measuring Instruments	Optical Instruments and Lenses
Number of Establishments		216	463	114
All Employees:				
Number (Average for Year)		20,384	53,237	6,458
Salaries and Wages, Total		$61,719	155,589	18,664
Production and Related Workers:				
Number (Average for Year)		15,023	40,937	5,228
Man-Hours, Total (Thousands)		30,099	81,757	10,820
Wages, Total		$41,831	109,198	14,025
Value Added by Manufacture		$83,010	245,144	26,743
	Establishments Reporting Detailed Statistics			
Number of Establishments		216	347	114
All Employees:				
Number (Average for Year)		20,384	52,781	6,458
Salaries and Wages, Total		$61,719	154,519	18,664
Production and Related Workers:				
Number (Average for Year)		15,023	40,465	5,228
Man-Hours, Total (Thousands)		30,099	80,811	10,820
Wages, Total		$41,831	108,138	14,025
Value Added by Manufacture		$83,010	243,387	26,743
Cost of Materials, Fuel, Electricity and Contract Work		$43,693	130,221	9,338
Materials, Parts, Containers, and Supplies		41,627	124,125	8,456
Fuels, Total		427	1,228	167
Bituminous Coal		119	476	85
Anthracite		9	54	.....
Coke		.....	15	.....
Fuel Oils		230	334	16
Gas		64	298	65
Other Fuels		5	51	1
Purchased Electric Energy		593	1,658	209
Contract and Commissioned Work		1,046	3,210	506
Value of Inventories:				
Beginning of Year, Total		$30,732	84,132	8,308
Finished Products		5,010	14,261	960
Materials, Supplies, and Work in Process		25,722	69,871	7,348
End of Year, Total		39,403	95,386	8,860
Finished Products		7,445	17,317	1,630
Materials, Supplies, and Work in Process		31,958	78,069	7,230
Expenditures for Plant and Equipment:				
New Plant and Equipment		$4,489	8,846	1,520
Construction and Major Alteration of Fixed Plants		1,645	1,706	255
Buildings		1,557	1,514	249
Other Construction		88	192	6
Machinery and Equipment		2,844	7,140	1,265
Production Machinery and Equipment		2,393	5,999	1,218
Other Machinery and Equipment		451	1,141	49
Used Plant and Equipment, and Land		3,566	1,440	331

Scientific Instrument Industry, Selected Data

(Money Figures in Millions of Dollars)

Source: Dept. of Commerce

Year 1947	U. S. Total	Ill.	Md.	Mass.	N. J.	N. Y.	Ohio	Pa.	All Other States
Number of Establishments	216	26	7	13	17	38	10	14	91
All Employees:									
Number (Average for Year)	20,384	2,256	848	453	5,959	7,020	219	803	2,828
Salaries and Wages (Total)	$61.7	$6.4	$2.6	$1.3	$19.0	$21.4	$0.6	$2.1	$8.3
Production and Related Workers:									
Number (Average for Year)	15,023	1,698	552	348	4,308	5,205	158	563	2,191
Wages (Total)	$41.8	$4.3	$1.5	$1.0	$12.3	$15.1	$0.4	$1.3	$5.9
Value Added by Manufacture[1]	$83.0	$9.5	$3.1	$2.2	$24.0	$28.6	$1.0	$2.4	$12.2
Cost of Materials, Fuel, Electricity, and Contract Work	$43.7	$4.8	$2.0	$0.8	$12.6	$15.6	$0.5	$1.3	$6.1
Value of Products Shipped	$126.7	$14.3	$5.2	$3.1	$36.6	$44.3	$1.5	$3.7	$18.0

[1]Value of shipments less cost of materials, fuel, electricity, and contract work.

Electrical Measuring Instruments Industry, Selected Data

(Money Figures in Millions of Dollars)

Source: Dept. of Commerce

Year 1947	U. S. Total	Calif.	Conn.	Ill.	N. J.	Ohio	Pa.	All Other
Number of Establishments	154	16	8	25	25	10	10	60
All Employees:								
Number (Average for Year)	20,926	267	259	4,039	6,100	1,429	900	7,932
Salaries and Wages (Total)	$60.7	$0.9	$0.6	$11.5	$19.1	$3.3	$2.2	$23.0
Production and Related Workers:								
Number (Average for Year)	16,086	184	188	3,216	4,622	1,188	667	6,039
Wages (Total)	$42.3	$0.6	$0.4	$8.4	$13.7	$2.3	$1.5	$15.5
Value Added by Manufacture[1]	$103.9	$1.7	$0.6	$18.5	$32.6	$4.3	$3.1	$42.9
Cost of Materials, Fuel, Electricity, and Contract Work	$49.4	$1.3	$0.6	$10.4	$11.2	$3.6	$1.7	$20.6
Value of Shipments	$153.4	$3.1	$1.4	$28.8	$43.9	$7.9	$4.8	$63.5

[1]Value of shipments less cost of materials, fuel, electricity, and contract work.

Sand Blasting Departments Operated by U. S. Metalworking Plants Employing 21 or More Plant Workers

(Source: THE IRON AGE Basic Marketing Data)

Alabama	33	Nebraska	23
Arizona	3	Nevada	1
Arkansas	2	New Hampshire	17
California	208	New Jersey	154
Colorado	18	New Mexico	1
Connecticut	130	New York	93
Delaware	11	North Carolina	17
District of Columbia	1	North Dakota	
Florida	13	Ohio	475
Georgia	25	Oklahoma	16
Idaho	2	Oregon	25
Illinois	350	Pennsylvania	419
Indiana	165	Rhode Island	30
Iowa	59	South Carolina	5
Kansas	22	South Dakota	1
Kentucky	22	Tennessee	40
Louisiana	16	Texas	72
Maine	13	Utah	10
Maryland	36	Vermont	10
Massachusetts	201	Virginia	20
Michigan	341	Washington	36
Minnesota	51	West Virginia	19
Mississippi	3	Wisconsin	146
Missouri	90	Wyoming	1
Montana	2	Total	3648

Painting and Lacquering Departments Operated by U. S. Metalworking Plants Employing 21 or More Plant Workers

(Source: THE IRON AGE Basic Marketing Data)

Alabama	50	Nebraska	41
Arizona	3	Nevada	..
Arkansas	13	New Hampshire	28
California	551	New Jersey	391
Colorado	37	New Mexico	1
Connecticut	265	New York	860
Delaware	11	North Carolina	44
District of Columbia	8	North Dakota	1
Florida	38	Ohio	904
Georgia	68	Oklahoma	46
Idaho	4	Oregon	45
Illinois	980	Pennsylvania	661
Indiana	324	Rhode Island	101
Iowa	126	South Carolina	5
Kansas	62	South Dakota	5
Kentucky	56	Tennessee	66
Louisiana	21	Texas	126
Maine	19	Utah	13
Maryland	83	Vermont	14
Massachusetts	394	Virginia	43
Michigan	628	Washington	50
Minnesota	151	West Virginia	36
Mississippi	12	Wisconsin	319
Missouri	206	Wyoming	2
Montana	3	Total	7895

Enameling, Galvanizing, Engraving, and Plating

Value of Products: 1947 and 1939

Money Figures in Thousands of Dollars

Source: Bureau of Census

	1947 Total Shipments and Interplant Transfers*	1939 Total Production for Sale and Interplant Transfer*
(Consists Principally of Receipts for Work Done on Materials Owned by Others. For Each Item, the Value Represents Only Work Done by Establishments Classified in the Industry to Which the Product (Service) is Primary)	$233,303	$45,386
Enameling, Japanning, and Lacquering	23,361	5,158
Galvanizing and Other Hot-dip Coating	20,199	6,196
Engraving on Metal	17,268	5,864
Electroplating, Plating and Polishing	172,475	28,168

* Value f.o.b. Plant.

Galvanizing or Tinning Departments Operated by U. S. Metalworking Plants Employing 21 or More Plant Workers

(Source: THE IRON AGE Basic Marketing Data)

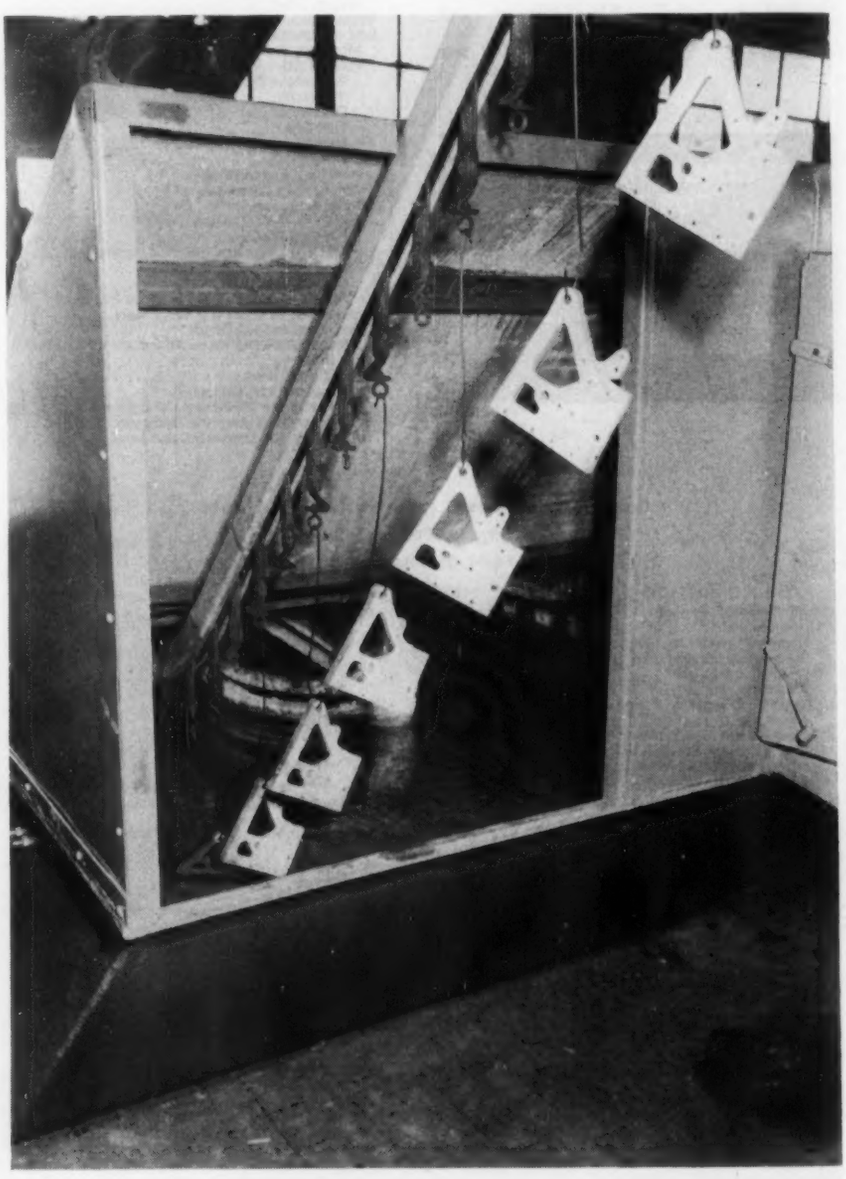
Alabama	12	Nebraska	6
Arizona	1	Nevada	..
Arkansas	..	New Hampshire	3
California	63	New Jersey	42
Colorado	3	New Mexico	..
Connecticut	36	New York	77
Delaware	1	North Carolina	4
District of Columbia	1	North Dakota	..
Florida	5	Ohio	115
Georgia	8	Oklahoma	3
Idaho	1	Oregon	1
Illinois	81	Pennsylvania	104
Indiana	38	Rhode Island	9
Iowa	17	South Carolina	..
Kansas	..	South Dakota	..
Kentucky	7	Tennessee	8
Louisiana	4	Texas	13
Maine	4	Utah	1
Maryland	20	Vermont	..
Massachusetts	63	Virginia	3
Michigan	58	Washington	6
Minnesota	18	West Virginia	7
Mississippi	3	Wisconsin	41
Missouri	30	Wyoming	1
Montana	..	Total	918

VITREOUS-ENAMELED PRODUCTS

Selected Data on the Industry for 1947

Source: Department of Commerce

	Number of Establishments	Number of Production and Related Workers	Man-hr, Total (000 Omitted)	Wages, Total (000 Omitted)	Value Added by Manufacture (000 Omitted)	Cost of Materials, Fuel, Electricity and Contract Work (000 Omitted)	Value of Products Shipped (000 Omitted)	Expenditures For New Plant and Equipment (000 Omitted)
Vitreous Enameled Products, Total	49	11,061	21,119	$22,917	$45,116	$29,266	$74,382	$2,977
New England	6	164	382	346	637	374	1,011	85
Massachusetts	6	164	382	346	637	374	1,011	85
Middle Atlantic	14	2,778	5,231	5,196	11,998	5,762	17,760	1,256
New York	7	457	983	1,052	2,161	1,124	3,285	65
Pennsylvania	7	2,321	4,248	4,144	9,837	4,638	14,475	1,193
East North Central	19	5,538	10,474	12,262	22,180	14,844	37,004	1,075
Ohio	11	4,132	7,661	8,648	14,842	10,421	25,263	456
Illinois	4	645	1,263	1,650	2,790	2,080	4,870	330
South Atlantic	3	1,550	2,815	3,179	6,491	4,333	10,824	263
East South Central	3	922	1,991	1,620	3,306	3,673	6,979	226
Pacific	4	109	226	314	524	280	804	70



Metal Industry Facts

Material handling
Power transmission
Metal finishing
Testing and inspection

INDUSTRIAL TRUCKS, TRACTORS, TRAILERS, AND STACKERS

Quantity and Value of Industry Output
(Money figures in thousands of dollars)

Source: Bureau of Census

	1947 Total Shipments and Interplant Transfers	
	Quantity (Number of Units)	Value f.o.b. Plant
Industrial trucks, tractors, trailers, portable elevators, and accessories	.....	$156,754
Powered trucks, operator walking	7,469	8,053
Powered trucks, operator riding	20,385	66,437
Fork trucks	17,943	56,970
Electric (storage battery and gasoline powered)	3,522	15,212
Gasoline powered	14,421	41,758
Other trucks	2,442	9,467
Electric (storage battery and gasoline powered)	1,300	5,887
Gasoline powered	1,142	3,800
Tractors	2,460	3,890
Electric (storage battery and gasoline-electric powered)	199	367
Gasoline powered	2,261	3,523
Portable elevators	4,653	3,162
Hand trucks and trailers	.....	29,430
Hand lift	n.a.	8,373
Other (includes 2-wheel, 4-wheel, dollies, and platform trucks)	.....	21,057
Parts and attachments and miscellaneous equipment, sold separately (including pallets and skids)	.....	41,572
Industrial trucks and tractors not reported by type	.....	4,210

Pickling Departments Operated by U. S. Metalworking Plants Employing 21 or More Plant Workers

(Source: THE IRON AGE Basic Marketing Data)

Alabama	16	Nebraska	7
Arizona	1	Nevada	
Arkansas	2	New Hampshire	7
California	156	New Jersey	138
Colorado	8	New Mexico	
Connecticut	157	New York	283
Delaware	3	North Carolina	7
District of Columbia	4	North Dakota	
Florida	5	Ohio	298
Georgia	13	Oklahoma	6
Idaho	1	Oregon	7
Illinois	246	Pennsylvania	288
Indiana	105	Rhode Island	81
Iowa	24	South Carolina	1
Kansas	7	South Dakota	
Kentucky	18	Tennessee	27
Louisiana	3	Texas	24
Maine	3	Utah	2
Maryland	25	Vermont	2
Massachusetts	177	Virginia	8
Michigan	201	Washington	16
Minnesota	25	West Virginia	14
Mississippi	1	Wisconsin	74
Missouri	61	Wyoming	2
Montana		Total	2550

Galvanized Products Shipments
Value of Products Shipped, by Broad Classes of Products: 1947

Source: Bureau of Census

Total Shipments by the Galvanizing Industry	$27,111,000
Galvanizing and Other Hot-Dip Coating	20,199,000
Secondary Products	1,268,000
Miscellaneous Receipts	5,644,000
Non-Manufacturing Activities	4,230,000
Other Receipts	1,414,000

Metal Washing or Degreasing Departments Operated by U. S. Metalworking Plants Employing 21 or More Plant Workers

(Source: THE IRON AGE Basic Marketing Data)

Alabama	25	Iowa	77	Nevada		South Dakota	1
Arizona	1	Kansas	31	New Hampshire	20	Tennessee	38
Arkansas	5	Kentucky	35	New Jersey	272	Texas	64
California	353	Louisiana	14	New Mexico		Utah	2
Colorado	19	Maine	5	New York	626	Vermont	8
Connecticut	253	Maryland	58	North Carolina	18	Virginia	17
Delaware	6	Massachusetts	288	North Dakota		Washington	19
District of Columbia	3	Michigan	528	Ohio	653	West Virginia	18
Florida	14	Minnesota	91	Oklahoma	20	Wisconsin	204
Georgia	38	Mississippi	6	Oregon	19	Wyoming	1
Idaho	3	Missouri	127	Pennsylvania	429	Total	5,464
Illinois	697	Montana	1	Rhode Island	101		
Indiana	230	Nebraska	24	South Carolina	4		

Industrial Trucks and Tractors
Selected data for the industry
(Money figures and man-hours in millions)

Source: Bureau of Census

	1947	1939
Number of establishments	197	70
Production and related workers:		
Number (average for the year)	10,652	3,882
Man-hours (total)	22.5	n.a.
Wages (total)	$29.7	$4.6
Value added by manufacture*	$81.8	$13.2
Cost of materials, fuel, electricity and contract work	$80.8	$17.2
Value of shipments**	$162.6	$30.4
Expenditures for new plant and equipment	$8.5	n.a.

*—For 1947, value of shipments less cost of materials, fuel, electricity, and contract work. For 1939, value of production less cost of materials, fuel, electricity, and contract work.
**—Value of production for 1939.
n.a.—Not available.

INDUSTRIAL TRUCK AND TRACTOR INDUSTRY
Selected Data for 1947
(Money figures in millions)

Source: Bureau of Census

	United States Total	Calif.	Ill.	Mich.	N. J.	Ohio	Oregon	Va.	All Other States
Number of establishments	197	15	18	17	12	27	5	6	97
Production and related workers:									
Number (average for the year)	10,652	151	1,705	1,490	285	2,087	702	172	4,060
Wages (total)	$29.7	$0.5	$5.0	$4.6	$0.7	$6.1	$2.2	$0.3	$10.3
Cost of materials, fuel, electricity, and contract work	$80.8	$1.0	$16.2	$14.0	$1.4	$15.3	$8.7	$0.4	$23.8
Value of shipments	$162.6	$1.9	$30.7	$29.6	$3.4	$32.7	$12.8	$1.1	$50.4

Enameled and Lacquered Products
Value of Products Shipped, by Broad Classes of Products: 1947

Source: Bureau of Census

Total Shipments by the Enameling and Lacquering Industry	$23,868,000
Enameling Japanning and Lacquering	23,361,000
Secondary Products	407,000
Miscellaneous receipts	100,000

CONVEYER INDUSTRY
Selected data, by states for 1947
(Money Figures in Millions of Dollars)

Source: Bureau of Census

	United States Total	Ill.	Ind.	Mich.	N. J.	N. Y.	Ohio	Pa.	All Other States
Number of Establishments	253	33	9	33	13	15	29	22	99
Production and Related Workers:									
Number (Average for Year)	18,073	3,494	504	2,520	481	510	5,435	1,286	3,843
Wages (Total)	$55.0	$12.0	$1.4	$9.1	$1.4	$1.5	$16.1	$3.8	$9.7
Value Added by Manufacture	$143.5	$26.6	$2.9	$23.8	$5.8	$4.2	$41.9	$12.9	$25.4
Cost of Materials, Fuel, Electricity, and Contract Work	$104.9	$23.3	$2.1	$13.8	$2.3	$2.8	$31.9	$7.3	$21.4
Value of Shipments	$248.4	$49.8	$5.0	$37.6	$8.1	$7.0	$73.8	$20.2	$46.9

Continued

POWER TRANSMISSION EQUIPMENT

Selected data on size and value of power transmission equipment industry (Money figures and man-hours in millions)

Source: Bureau of Census

Comparative Data—1934-1947	1947	1939
Number of establishments	416	250
Production and related workers:		
Number (average for the year)	43,975	18,203
Man-hours (total)	89.6	n.a.
Wages (total)	$124.9	$27.6
Value added by manufacture[1]	$283.6	$68.5
Cost of materials, fuel, electricity, and contract work	$148.1	$40.8
Value of shipments[2]	$431.8	$109.3
Expenditures for new plant and equipment	$14.6	n.a.

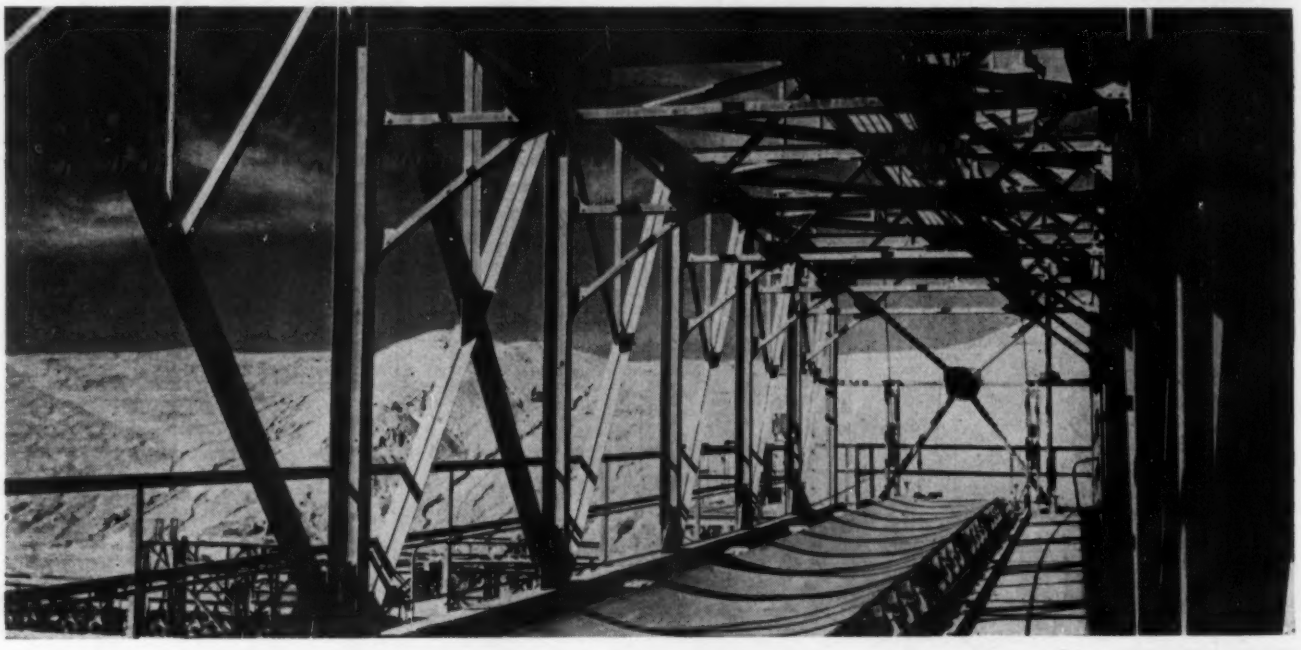
Data by States	United States Total	Calif.	Ill.	Ind.	Mass.	Mich.	N. Y.	Ohio	All Other States
Number of establishments	416	31	60	21	24	43	48	48	143
Production and related workers:									
Number (average for the year)	43,975	1,026	4,530	8,001	2,326	5,330	2,497	7,113	13,152
Wages (total)	$124.9	$3.1	$14.0	$21.9	$5.7	$13.6	$7.6	$21.2	$37.8
Value added by manufacture[3]	$283.6	$6.6	$30.8	$50.1	$12.1	$31.2	$15.9	$48.4	$88.5
Cost of materials, fuel, electricity, and contract work	$148.1	$3.6	$17.5	$22.9	$4.5	$15.5	$10.1	$23.9	$50.1
Value of shipments	$431.8	$10.2	$48.3	$73.0	$16.6	$46.7	$26.0	$72.3	$138.7

[1]—For 1947, value of shipments less cost of materials, fuel, electricity, and contract work. For 1939, value of production less cost of materials, fuel, electricity, and contract work.
[2]—Value of production for 1939.
[3]—Value of shipments less cost of materials, fuel, electricity, and contract work.
N.A.—Not available.

Electroplating Departments Operated by U. S. Metalworking Plants Employing 21 or More Plant Workers

(Source: THE IRON AGE Basic Marketing Data)

Alabama	6	Nebraska	9
Arizona	..	Nevada	1
Arkansas	3	New Hampshire	14
California	144	New Jersey	186
Colorado	10	New Mexico	..
Connecticut	187	New York	332
Delaware	2	North Carolina	6
District of Columbia	4	North Dakota	..
Florida	5	Ohio	292
Georgia	21	Oklahoma	8
Idaho	2	Oregon	2
Illinois	289	Pennsylvania	210
Indiana	114	Rhode Island	72
Iowa	30	South Carolina	1
Kansas	8	South Dakota	..
Kentucky	14	Tennessee	10
Louisiana	1	Texas	17
Maine	3	Utah	3
Maryland	22	Vermont	3
Massachusetts	175	Virginia	15
Michigan	221	Washington	9
Minnesota	36	West Virginia	11
Mississippi	..	Wisconsin	82
Missouri	56	Wyoming	2
Montana	..		Total 2638



GALVANIZING INDUSTRY—SELECTED DATA FOR 1947

Source: Department of Commerce

	Number of Establishments	Number of Production and Related Workers	Man-hr, Total (000 Omitted)	Wages, Total (000 Omitted)	Value Added by Manufacture (000 Omitted)	Cost of Materials, Fuel, Electricity and Contract Work (000 Omitted)	Value of Products Shipped (000 Omitted)	Expenditures For New Plant and Equipment (000 Omitted)
Galvanizing, Total	125	2,711	5,695	$6,548	$15,296	$11,815	$27,111	$681
Northeast	38	1,109	2,334	2,447	5,472	6,592	12,064	160
New York	11	143	295	344	560	487	1,047	61
Pennsylvania	12	521	1,089	1,247	3,285	5,304	8,589	40
East North Central	39	965	2,037	2,496	6,067	2,740	8,807	280
Ohio	10	248	559	667	1,898	684	2,582	68
Illinois	17	347	742	975	2,438	1,055	3,493	96
Wisconsin	3	223	468	472	933	491	1,424	55
West North Central	10	71	138	138	260	149	409	48
South	11	276	570	604	1,374	833	2,207	129
West	27	290	616	863	2,123	1,501	3,624	64
California	21	268	566	809	1,982	1,407	3,389	64

Industrial Electrical Trucks and Tractors

Shipments by Number of Units

Source: Electrical Industrial Truck Assn. and Bureau of Census

Year	Total	Domestic	Export
1935	925	850	75
1936	1,250	1,165	85
1937	1,850	1,740	110
1938	840	670	170
1939	1,080	910	170
1940	1,775	1,570	145
1941	3,095	2,830	250
1942	4,570	4,370	205
1943	4,490	4,285	215
1944	4,775	4,330	395
1345	3,850	3,625	225
1946	2,870	2,715	160
1947	4,130	3,585	570
1948	3,450	2,900	545

Continued on Page 254

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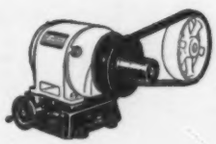

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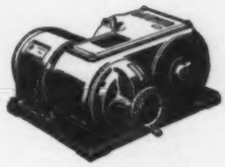

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Continued

PRICES OF ELECTROPLATING ANODES

Average monthly prices, as quoted by The Iron Age of anodes for electroplating (Cents per lb, freight allowed, in 500 lb lots)

	Copper, Cast, Oval, 15 in. or Longer	Copper, Electro-Deposited	Copper, Rolled, Oval, Straight, Delivered	Copper, Curved 18 in. or Longer, Delivered	Brass, Cast, Oval, 15 in. or Longer	Zinc, Cast, 99.99	Nickel, 99 pct plus, Freight Allowed, Cast	Rolled, Depolarized	Silver, 999 Fine, Rolled 1000 Oz Lots
1947: Jan.	34⅞	28⅝	29⅛	29⅛	31⅜	18¾	51	52	84
Feb.	34⅞	28⅝	29⅛	29⅛	31⅜	18¾	51	52	75
Mar.	36⅜	30⅞	31⅜	29⅛	32.594	18¾	51	52	84.94
Apr.	36⅞	31⅝	32⅛	....	33	18¾	51	52	88¼
May	36⅞	31⅝	32¼	....	33	18¾	51	52	88¼
June	37.815	32.563	33.063	....	33.656	18¾	51	52	78½
July	37⅝	32.361	32.761	....	33⅜	18¾	51	52	67¼
Aug.	37⅝	32.34	32.59	....	33⅜	18¾	51	52	67¼
Sept.	37⅝	32.34	32.59	....	33⅜	18¾	51	52	67¼
Oct.	37⅝	32.34	32.59	....	33⅜	18¾	51	52	67¼
Nov.	37⅝	32.34	32.59	....	33⅜	18¾	51	52	67¼
Dec.	37⅝	32.34	32.59	....	33⅜	18¾	51	52	67¼
Yearly Average	36.953	31.50	31.887	29⅛	32.936	18¾	51	52	75.20
1948: Jan.	37⅝	32.34	32.59	....	33⅜	18¾	51	52	67¼
Feb.	37⅝	32	32.97	....	33⅜	20.06	51	52	67¼
Mar.	37⅝	32⅜	33.09	....	33⅜	20.50	51	52	67¼
Apr.	37⅝	32⅜	33.09	....	33⅜	20.50	51	52	67¼
May	37⅝	32⅜	33.09	....	33⅜	20.50	51	52	67¼
June	37⅝	32⅜	33.09	....	33⅜	20.50	51	52	67¼
				Rolled Oval, 18 in.	Ball Anodes				100 oz lots
July	37⅝	32⅜	34.09	35⅞	30⅜	34⅝ Zinc, Oval 20.50	51	52 Cadmium	67¼
Aug.	39	33⅜	35.84	35⅞	36.775	35⅞ 22.50	20.50	59 60	2 67¼
Sept.	40⅛	34⅜	37.34	....	38⅜	35⅞ 22.50	20.50	59 60	2 76.70
Oct.	40⅛	34⅜	37.34	....	38⅜	35⅞ 22.50	20.50	59 60	2 84
Nov.	40⅛	34⅜	37.34	....	38⅜	35⅞ 22.50	20.50	59 60	2.02 81⅜
Dec.	40⅛	34⅜	37.34	....	38⅜	35⅞	....	59 ..	2.10 79
Yearly Average	38.573	33.325	34.767	35⅞	35.455	34.229 22.50	20.30	54⅓ 55	2.02⅜ 71.589

	Copper, Cast Oval, 15 in. or Longer	Copper-Electro-Deposited	Copper Rolled, Oval, Straight, Delivered	Copper, Ball Anodes	Brass, 80-20, Cast, Oval, 15 in. or Longer	Zinc, Oval 99.886, f.o.b. Detroit	Ball Anodes	Nickel, 99 pct Plus, Cast	Rolled	Cadmium	Silver, 999 Fine, Rolled, 100 Oz Lots, Troy Oz, f.o.b. Bridgeport
1949: Jan.	40⅛	34⅜	37.34	38⅜	35⅞	....	20.50	59	60	2.10	79
Feb.	40⅛	34⅜	37.34	38⅜	35⅞	....	20.50	59	60	2.10	79
Mar.	39.63	34⅜	37.34	38⅜	35⅞	....	21.50	59	60	2.11	79
Apr.	38.64	34⅜	37.34	38⅜	35⅞	....	24.25	59	60	2.15	79
May	37¼	34⅜	32.91	35½	33	22½	20½	59	60	2.15	79
June	34⅝	31½	31.84	32⅞	30⅜	22½	20½	59	60	2.15	79
July	34⅝	28⅞	31.84	32⅞	30⅜	22½	20½	59	60	2.15	79
Aug.	34⅝	28⅞	31.46	32⅞	30⅜	17¼	16¼	59	60	2.15	79
Sept.	34⅝	28⅞	31.46	32⅞	30⅜	17¼	16¼	59	60	2.15	79
Oct.	34⅝	28⅞	31.46	32⅞	30⅜	17¼	16¼	59	60	2.15	79
Nov.	35.28	28.53	32.62	33.53	31.03	17¼	16¼	59	60	2.15	79
Dec.	35½	29¾	33	33¾	31¼	17¼	16¼	59	60	2.15	79
Yearly Average	36.66	31.43	33.83	35.05	32.55	19.34	19.09	59	60	2.14	79

PLATING AND POLISHING—SELECTED DATA FOR 1947

Source: Department of Commerce

	Number of Establishments	Number of Production and Related Workers	Man-hr, Total (000 Omitted)	Wages, Total (000 Omitted)	Value Added by Manufacture (000 Omitted)	Cost of Materials, Fuel, Electricity and Contract Work (000 Omitted)	Value of Products Shipped (000 Omitted)	Expenditures For New Plant and Equipment (000 Omitted)
Plating and Polishing, Total	1,802	25,596	52,156	$84,480	$125,388	$51,104	$176,492	$6,137
New England	231	3,125	6,847	7,550	14,488	4,008	18,496	708
Massachusetts	89	1,233	2,455	2,930	5,413	1,523	6,936	263
Rhode Island	54	430	887	905	1,774	518	2,292	38
Connecticut	84	1,406	3,014	3,574	7,035	1,895	8,930	405
Middle Atlantic	498	5,699	11,816	13,616	27,455	10,711	38,166	1,323
New York	329	3,415	6,995	8,273	16,492	5,160	21,652	696
New Jersey	88	1,071	2,312	2,660	5,550	1,540	7,090	378
Pennsylvania	81	1,213	2,509	2,683	5,413	4,011	9,424	249
East North Central	670	13,145	26,455	34,463	66,945	31,276	98,221	3,476
Ohio	182	3,261	6,531	8,221	15,785	8,766	24,551	908
Indiana	53	792	1,594	1,979	4,207	1,337	5,544	382
Illinois	204	3,743	7,892	10,392	20,078	6,547	26,625	716
Michigan	186	4,811	9,416	12,834	24,566	13,991	38,557	1,375
Wisconsin	45	538	1,022	1,237	2,309	635	2,944	95
West North Central	78	822	1,715	1,982	3,686	1,184	4,870	179
Minnesota	31	271	571	652	1,356	511	1,867	35
Iowa	8	104	235	219	380	122	502	40
Missouri	34	404	802	1,004	1,716	485	2,201	99
South	86	731	1,481	1,491	2,684	820	3,484	93
Maryland	8	84	182	217	388	119	507	9
Tennessee	5	91	184	180	228	108	336	10
Texas	19	123	248	237	528	156	684	39
West	239	2,074	4,202	5,358	10,150	3,105	13,255	358
California	211	1,935	3,933	4,983	9,462	2,915	12,377	334

COMPLETE INDEX FOR ISSUE

A complete, cross referenced index of all material appearing in all data sections of this issue begins on p. 3.

Polishing or Buffing Departments Operated by U. S. Metalworking Plants Employing 21 or More Plant Workers

(Source: THE IRON AGE Basic Marketing Data)

Alabama	20	Nebraska	18
Arizona	1	Nevada	1
Arkansas	5	New Hampshire	26
California	285	New Jersey	292
Colorado	23	New Mexico	..
Connecticut	279	New York	659
Delaware	6	North Carolina	24
District of Columbia	4	North Dakota	1
Florida	15	Ohio	596
Georgia	39	Oklahoma	9
Idaho	1	Oregon	25
Illinois	545	Pennsylvania	403
Indiana	190	Rhode Island	107
Iowa	66	South Carolina	3
Kansas	25	South Dakota	1
Kentucky	42	Tennessee	31
Louisiana	7	Texas	53
Maine	12	Utah	4
Maryland	42	Vermont	11
Massachusetts	328	Virginia	22
Michigan	392	Washington	25
Minnesota	75	West Virginia	17
Mississippi	3	Wisconsin	183
Missouri	120	Wyoming	2
Montana	..		
		Total	5,008

POWER TRANSMISSION EQUIPMENT—SHIPMENTS

Power Transmission Equipment—Shipments
Selected data on shipments of mechanical power transmission equipment, except ball and roller bearings, for 1939 and 1947.

(In thousands of dollars)

Source: Bureau of Census)

	1947 Total Shipments and Interplant Transfers Value f.o.b. Plant	1939 Total Production For Sale and Interplant Transfer Value f.o.b. Plant
Plain bearings and bushings	$122,089	n.a.
Unmounted	117,384	$37,192
Mounted	4,705	***
Speed reducers, gears, and industrial high speed drives, fixed ratio	112,403	35,122***
Industrial high speed drives, fixed ratio	6,782	***
Speed reducers, fixed ratio (enclosed):		
Worm gears	12,291	.....
Gearmotors (reducer element only)	12,376	14,418
Petroleum type gearing	580	.....
Other speed reducers, fixed ratio (enclosed)	17,505	.....
Gears, pinions and racks, unmounted:		
Fine pitch (20 pitch and finer)	6,607	.....
Other than fine pitch (less than 20 pitch):	.....	20,704
Railway type gears	3,699	.....
Aircraft engine gears	2,974	.....
Other gears, pinions and racks (less than 20 Pitch)	47,578	.....
Speed reducers, gears and industrial high speed drives (fixed ratio), not specified by kind	2,011	.....
Other mechanical power-transmission equipment	184,156	43,929
Variable ratio speed drives	12,211	4,269
Clutches:		
Friction type	15,097	.....
Other types (including hydraulic couplings)	5,414	.....
Couplings (except hydraulic)		
Rigid type	626	.....
Flexible type	9,072	.....
Universal joints	6,251	.....
Chains for sprocket drives	53,409	39,660*
Sprockets	15,623	.....
Pulleys	10,316	.....
Sheaves:		
Single drive	6,814	.....
Multiple drive	16,692	.....
Other mechanical power-transmission equipment, except automobile, truck and bus	32,631	.....
Mechanical power-transmission equipment not reported by kind	6,634	.....

NOTE: The total value of shipments of mechanical power-transmission equipment shown in this table represents the total value of such equipment shipped by all establishments and, therefore, differs from the total in "General Statistics for the Power-Transmission Equipment Industry, United States Totals: 1947 and 1939" which represents the value of all shipments by establishments classified in the Mechanical Power-Transmission Equipment Industry.

* Data for plain mounted bearings and industrial high speed drives, fixed ratio, not shown separately in 1939. Data for these products are included in the $39,660 thousand figure for other mechanical power-transmission equipment (except variable ratio speed drives).

n.a.—Not available.

CONVEYING EQUIPMENT—SHIPMENTS

Conveying Equipment—Shipments
Shipments of the industry by type of product for years 1939 and 1947
(Money figures in thousands of dollars)

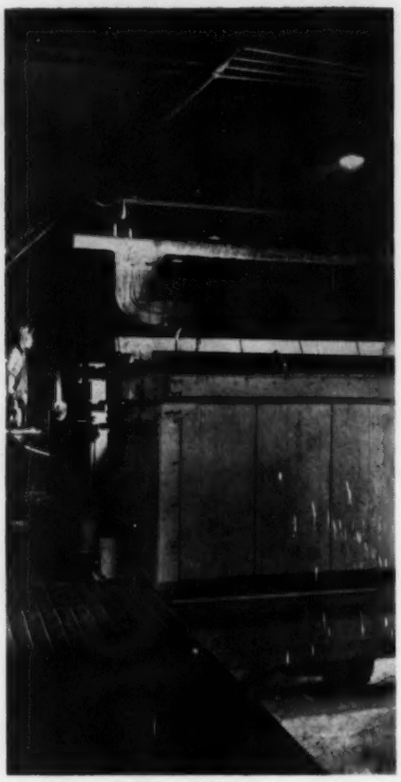
Source: Bureau of Census

	1947 Total Shipments and Interplant Transfers		1939 Total Production for Sale and Interplant Transfer	
	Quantity	Value f.o.b. Plant	Quantity	Value f.o.b. Plant
Overhead traveling cranes and monorail systems	.....	$37,242	.....	n.a.
Overhead traveling cranes:				
Electric	2,149	27,987		
Hand power	1,042	1,258	n.a.	$8,272
Monorail systems	.....	7,997	.....	*
Conveyors and conveying equipment, except overhead traveling cranes and monorail systems	.....	193,468	.....	n.a.
Conveyors and conveying systems	.....	142,573	.....	n.a.
Gravity conveyors (skate wheel and roller)	.....	10,262	.....	1,698
Power conveyors (excluding overhead trolley conveyor systems, pneumatic tube systems, and portable conveyors)	.....	17,604		
Overhead trolley conveyor systems	.....	10,904		
Pneumatic tube systems (including foot-power units)	.....	2,200	.....	26,076
Portable conveyors (except farm)	.....	14,583		*
Other conveyors and conveying systems (including specially engineered conveyor installations)	.....	87,020		
Parts, attachments and accessories for conveyors and conveying systems, sold separately	.....	34,754	.....	n.a.
Conveyors and conveying equipment, not specified by type	.....	3,364	.....	.....

* In 1939, farm elevators and monorail systems were included with conveyors and conveying systems.

Note:—Total value of shipments of conveyors and conveying equipment shown in this table represents the total value of such equipment shipped by all establishments and differs from the total in supplementary table giving selected data on size of industry, etc., which represents the value of all shipments by establishments classified in the Conveyors and Conveying Equipment Industry.

Continued on Page 262



Material Handling Equipment
1947 Sales

Source: Conveyer Equipment Mfrs. Asn.

Type of Equipment	Dollar Volume	Percent
Conveyers	$193,468,000	26.0
Roller and skate-wheel gravity type	10,262,000	....
Trolley conveyers	10,904,000	....
Pneumatic tube systems	2,200,000	....
Others	170,102,000	....
Cranes	29,245,000	3.9
Monorails	7,997,000	1.2
Elevators and Escalators	101,815,000	13.6
Industrial Trucks and Tractors	162,603,000	21.9
Fork trucks	67,070,000	....
Electric and gasoline-electric powered	15,212,000	....
Gasoline powered	41,756,000	....
Lift trucks, tractors, portable elevators, hand trucks, and trailers	95,533,000	....
Power Shovels and Drag Lines	247,985,000	33.4
Wheel-mounted and walking machines and front-end attachments	92,828,000	....
Crawler-mounted machines	155,157,000	....
Total	743,113,000	100.0

Industrial Belting Sales

Source: Conveyer Equipment Mfrs. Asn.

CONVEYER BELTING—1947 and 1939

	Year	Number of Units	Dollar Volume
Conveyer and elevator rubber belting	1947	56,152,171	$37,195,000
	1939	18,583,416	$ 7,792,000

TRANSMISSION BELTING—1947 and 1939

	Year	Dollar Volume
Flat rubber transmission belting	1947	$26,132,000
	1939	7,304,000
V-Belts, industrial	1947	40,784,000
	1939	7,432,000
V-Belts automotive	1947	21,083,000
	1939	5,304,000

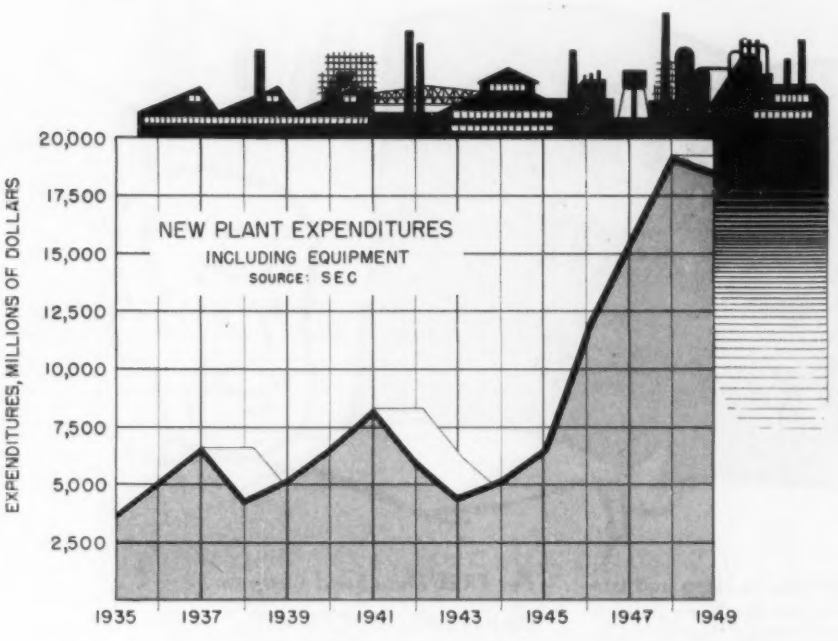
Continued

ENAMELING AND LACQUERING INDUSTRY

Selected Data For 1947

Source: Department of Commerce

	Number of Establishments	Number of Production and Related Workers	Man-hr, Total (000 Omitted)	Wages, Total (000 Omitted)	Value Added by Manufacture (000 Omitted)	Cost of Materials, Fuel, Electricity and Contract Work (000 Omitted)	Value of Products Shipped (000 Omitted)	Expenditures For New Plant and Equipment (000 Omitted)
Enameling and Lacquering, Total	261	3,653	7,395	$8,653	$16,638	$7,230	$23,868	$965
Northeast	120	1,064	2,157	2,188	4,100	1,837	5,937	143
New York	52	397	800	859	1,595	590	2,185	29
New Jersey	17	167	373	421	797	308	1,105	59
East North Central	102	2,136	4,301	5,340	10,299	4,384	14,683	656
Illinois	45	1,005	2,101	2,400	4,841	2,396	7,237	502
Michigan	25	622	1,203	1,755	3,017	1,111	4,128	72
Wisconsin	8	67	132	164	381	202	583	11
West North Central	12	140	278	310	564	241	805	28
Minnesota	6	98	194	237	395	190	585	19
South and West	27	313	659	815	1,675	768	2,443	138



VITREOUS ENAMELING INDUSTRY

Quantity and Value of Products: 1947 and 1939

Source: Bureau of Census

	1947		1939
	Total Shipments and Interplant Transfers of Products Made From Establishment's Own Materials*	Receipts for Work Done on Materials Owned by Others*	Total Production for Sale and Interplant Transfer*
Vitreous-enameled Products	$76,359	$7,024	$34,386
Cooking and Kitchen Utensils (including Household, Hospital and Commercial)	36,952	(a)	15,807
Other Vitreous-enameled Products	39,209	(a)	18,579
Table Tops (Kitchen Cabinets, Dinette and Breakfast Sets)	5,190	(a)	3,004
Stove Parts (Sold Separately)	5,449	3,286	3,373
Refrigerator Parts (Household and Commercial, Sold Separately)	6,210	1,774	2,403
Store Fronts	1,385	(a)	1,237
Other Architectural Porcelain Parts (Exterior and Interior)	1,476	32	
Hospital Utensils, Except Cooking and Kitchen	1,665	.....	758
Washing Machine Parts (Sold Separately)	12,868	321	3,671
Other Porcelain Enameled Products	4,966	1,296	4,133
Vitreous-enameled Products, Not Reported by Type	198	.....	.....

* Value f.o.b. plant.
(a) Data withheld to avoid disclosing figures for individual companies.

Expenditures for New Construction

Source: Dept. of Commerce, Dept. of Labor

Type of Construction	Expenditures (in millions of dollars)	
	1948	1947
Total new construction[1]	10,458	13,977
Private construction	8,253	10,893
Residential building (nonfarm)	3,183	5,260
Nonresidential building (nonfarm)	3,346	3,131
Industrial	1,689	1,702
Commercial	1,110	835
Warehouses, office and loft buildings	309	216
Stores, restaurants and garages	801	619
Religious	72	118
Educational	115	164
Social and recreational	121	92
Hospital and institutional	81	107
Hotel	52	43
Miscellaneous	106	70
Farm construction	350	450
Residential	212	253
Nonresidential	138	197
Public utilities	1,374	2,052
Railroad	258	318
Local transit	35	56
Pipeline	63	100
Electric light and power	443	611
Gas	270	457
Telephone and telegraph	305	510
Public construction	2,205	3,084
Residential building	369	182
Nonresidential building	325	505
Industrial	84	25
Commercial	4	(1)
Public administration	16	32
Educational	101	275
Social and recreational	11	17
Hospital and institutional	85	81
Miscellaneous	24	75
Military and naval facilities	188	204
Highway	772	1,233
State	506	900
County	165	202
Municipal	87	108
Federal	14	23
Sewage disposal	97	177
Water supply	97	154
Miscellaneous public service enterprises	87	117
Conservation and development	240	396
Bureau of reclamation	60	125
Army Engineers	147	222
Tennessee Valley Authority	17	30
Other	16	19
All other public	30	116

[1] Less than $500,000.

The Instrument Industry

Selected Data for 1939-47

Source: Bureau of Census

(Money figures and man-hours in millions)

Item	Total	
	1947	1939
Number of establishments	833	411
Production and related workers:		
Number (average for year)	72,046	28,580
Man-hours (total)	144.5	.....
Wages (total)	$193.3	$40.0
Value added by manufacture[1]	$432.0	$119.8
Cost of material, fuel, electricity, and contract work	$224.4	$53.6
Value of shipments[2]	$656.6	$173.5
Expenditures for new plant and equipment	$17.6	.....

[1] Value of shipments less cost of materials, fuel, electricity, and contract work. For 1939, value of production less cost of materials, fuel, electricity, and contract work.
[2] Value of production for 1939.

THE IRON AGE

METAL INDUSTRY FACTS ISSUE — SECTION 7

METAL PRODUCTS

GENERAL

AUTOMOBILES

RAILROADS

FARM EQUIPMENT

HOUSING

APPLIANCES

NATIONAL INCOME

SPOTLIGHTING 1949

Important Events Briefly Reviewed

Jan. 13—Farm implement predict a good year but fear rising production costs.

Jan. 20—Chevrolet announces important weight savings in its new 1949 models. Ford plans to double its purchase of parts in the West Coast.

Jan. 27—C. E. Wilson, president, General Motors sees 6 million autos produced during 1949. Estimated 1949 sales for nearly all major appliances expected to reach or exceed peak levels attained in 1948.

Feb. 3—Henry Kaiser urged members of the National Automobile Dealers Assn. to carry on the fight against Regulation "W" with increased vigor.

Feb. 17—Freight car program seen doomed unless new orders are placed in the next 30 to 60 days. Steel allocations are more than ample to meet the demand.

Feb. 24—General Motors inaugurates a nationwide program to curb air pollution.

Mar. 10—West's railroad car building program will require approximately 100,000 tons of steel—most of it from the West.

Mar. 24—A general balancing of supply with demand for farm machinery output this year predicted by the end of 1949, depending primarily upon the supply of steel.

Mar. 24—High auto production schedules help keep Detroit's steel demand up.

Apr. 7—Ford Motor Co. estimates the potential domestic market for cars and trucks in 1949 at 5½ million.

Apr. 14—Auto production for March hit a 20-year high.

Apr. 21—Consumers' price index declines in 61 of the 62 cities included in the monthly consumer price survey. Preliminary figures for the first quarter of 1949 indicate that dollar volume of construction is greater than in 1948.

Apr. 28—Auto industry, with adequate supplies of material on hand for the first time in years, appears to be heading into a period of labor unrest.

May 5—The household appliance field girds to meet increased consumer sales resistance.

May 12—Ford strike idles 135,000 workers.

May 19—Industrial building continues to lag while publicly financed construction dollar totals are up 37 pct from 1948.

May 25—Ford strike enters its third week with both sides admitting that no progress had been made in settling the differences.

May 26—Allegheny County, Pennsylvania, enacts an ordinance to control smoke and fly ash.

June 2—Competition seen returning to the construction field with wide spreads between various bidders.

June 16—The auto industry expects first half output of 1949 to be approximately 3 million units, an increase of 455,000 over the 1948 output.

June 23—Railroad freight car buying returns to normal with many independent car-building shops expected to shut down.

June 30—The broadening drive against smoke nuisance and stream pollution seen creating new problems in the financing of industrial plants.

July 14—Auto industry continues at peak production rate with postwar output topping 12 million units.

July 21—Construction for 1949 may set a record with a rapid rise noted in public expenditures.

Aug. 11—General Motors introduces the new Buick "40" series.

Aug. 18—Demonstration selling, a favorite sales technique of the auto industry for many years, returns as a means of reaching more prospects.

Sept. 1—Walter Reuther took the position of "we get pensions or else" as the Ford strike date draws near.

Sept. 8—Railroad car builders booked the first orders of any consequence in months.

Sept. 15—The auto industry established a new all-time production record for passenger cars during August, but truck output lags.

Sept. 22—Predictions of a Ford labor settlement patterned after the recommendations of the steel fact-finding board become more insistent as negotiations continue for the fifth consecutive day.

Oct. 6—Ford adopts non-contributory pension as best suited to meet the company's needs.

Oct. 13—Major industries reported spending less in 1949 for plant expansion.

Oct. 27—Shipments of steel products to automotive manufacturers in the first 6 months of 1949 set a new record.

Nov. 3—Los Angeles gray iron foundries faced with meeting a deadline for the control of air contaminants.

Nov. 17—Auto production hampered due to a shortage of steel caused by the month-long steel mill strike.

Dec. 1—Construction experts predict building boom will continue in 1950.

Dec. 8—General Motors wages remain unchanged because of no change in the cost of living during the last 3 months.

Dec. 15—Predict car and truck production for 1949 will reach an all-time high of 6,200,000 units.

Quick Guide to section No. 7

A complete cross-referenced index is on p. 3.

Metal Industry Facts

Metal products
General

ELECTRIC POWER PRODUCTION

(Millions of kw-hr)

Source: Federal Power Commission

	Total	Electric Utilities	Industrial Establishments
1935 monthly average	.....	7,941	.....
1936 monthly average	.....	9,110	.....
1937 monthly average	.....	9,909	.....
1938 monthly average	.....	9,484	.....
1939 monthly average	13,442	10,637	2,806
1940 monthly average	14,992	11,820	3,172
1941 monthly average	17,359	13,732	3,627
1942 monthly average	19,429	15,493	3,931
1943 monthly average	22,295	18,147	4,148
1944 monthly average	23,294	19,016	4,278
1945 monthly average	22,605	18,541	4,064
1946 monthly average	22,487	18,598	3,889
1947 monthly average	25,617	21,312	4,305
1948: January	28,518	23,961	4,558
February	26,497	22,165	4,332
March	28,074	23,512	4,562
April	26,636	22,309	4,327
May	27,067	22,606	4,461
June	27,187	22,713	4,474
July	27,670	23,295	4,376
August	28,789	24,242	4,547
September	28,065	23,613	4,452
October	29,053	24,385	4,673
November	28,768	24,180	4,587
December	30,478	25,716	4,762
1948 monthly average	28,067	23,558	4,509
1949: January	30,374	25,550	4,804
February	27,483	22,996	4,487
March	29,514	24,721	4,793
April	27,745	23,215	4,530
May	27,875	23,348	4,526
June	28,025	23,617	4,407
July	27,948	23,684	4,262
August	29,492	25,021	4,471
September	28,358	23,922	4,436
1949 monthly average*	28,750	24,150	4,600

* Iron Age estimate.

IDEAS WANTED

How would you improve this issue—to make it more readable — more useful — more accurate? The editors will appreciate suggestions.

Personal Income

Disposition of Personal Income—Annual Totals: 1935 to 1949

(Billions of dollars)

Source: U. S. Dept. of Commerce, Office of Business Economics

	Total	Personal Tax and Nontax Payments	Disposable Personal Income	
			Total	Personal Saving
1935	59.9	1.9	58.0	1.8
1936	68.4	2.3	66.1	3.6
1937	74.0	2.9	71.1	3.9
1938	68.3	2.9	65.5	1.0
1939	72.6	2.4	70.2	2.7
1940	78.3	2.6	75.7	3.7
1941	95.3	3.3	92.0	9.8
1942	122.7	6.0	116.7	25.6
1943	150.3	17.8	132.4	30.2
1944	165.9	18.9	147.0	35.4
1945	171.9	20.9	151.1	28.0
1946	176.9	18.8	158.1	10.3
1947	193.5	21.5	172.0	5.1
1948	211.9	21.1	190.8	12.0
1948				
First quarter†	205.1	23.2	181.9	6.7
Second quarter	210.3	20.7	189.6	10.8
Third quarter	215.4	20.2	195.2	15.0
Fourth quarter	216.6	20.4	196.2	15.3
1949*	213.5	19.0	195.0	15.0
1949				
First quarter	213.7	18.7	195.0	17.1
Second quarter	212.9	18.7	194.2	16.0

* Iron Age estimate
† Seasonally adjusted quarterly totals at annual rates

RETAIL PRICE INDEX OF ALL COMMODITIES

ALSO COAL INDEX AND CONSUMERS' PRICE INDEX FOR MODERATE INCOME FAMILIES

Source: U. S. Department of Labor; U. S. Department of Commerce

	All Commodities U. S. Dept. of Commerce Index	Coal, U. S. Dept. of Labor Indexes		Consumers' Price Index, U. S. Dept. of Labor						
		Anthracite	Bituminous	All Items	Apparel	Food (Total)	Fuel, Electricity, and Refrigeration (Total)	House Furnishings	Rent	Miscellaneous
	1935-39=100	1923-25=100		1935-39=100						
1935 monthly av.	97.6	79.4	85.7	98.1	96.8	100.4	100.7	94.8	94.2	98.1
1936 monthly av.	98.9	82.7	87.1	99.1	97.6	101.3	100.2	96.3	96.4	98.7
1937 monthly av.	103.5	79.6	88.4	102.7	102.8	105.3	100.2	104.3	100.9	101.0
1938 monthly av.	101.0	79.1	88.7	100.8	102.2	97.8	99.9	103.3	104.1	101.5
1939 monthly av.	99.0	77.2	87.7	99.4	100.5	95.2	99.0	101.3	104.3	100.7
1940 monthly av.	100.6	80.8	87.9	100.2	101.7	96.6	99.7	100.5	104.6	101.1
1941 monthly av.	108.3	85.2	92.6	105.2	106.3	105.5	102.2	107.3	105.2	104.0
1942 monthly av.	124.9	88.7	96.7	116.5	124.2	123.9	105.4	122.2	108.5	110.9
1943 monthly av.	134.0	93.9	100.9	123.6	129.7	138.0	107.7	125.6	108.0	115.8
1944 monthly av.	137.5	99.2	104.3	125.5	138.8	136.1	109.8	135.4	108.2	121.3
1945 monthly av.	141.4	102.7	106.5	128.4	145.9	139.1	110.3	145.8	108.3	124.1
1946 monthly av.	155.2	113.8	112.5	139.3	160.2	159.6	112.4	159.2	108.6	128.8
1947 monthly av.	180.1	123.7	131.0	159.2	185.8	193.8	121.1	184.4	111.2	139.9
1948										
Jan.	190.3	131.9	145.7	168.8	192.1	209.7	129.5	192.3	115.9	148.4
Feb.	189.0	132.1	146.4	167.5	195.1	204.7	130.0	193.0	116.0	146.4
March	188.6	132.1	146.5	166.9	196.3	202.3	130.3	194.9	116.3	146.2
April	190.8	132.0	147.4	169.3	196.4	207.9	130.7	194.7	116.3	147.8
May	192.1	132.4	150.5	170.5	197.5	210.9	131.8	193.6	116.5	147.5
June	193.5	134.7	152.3	171.7	196.9	214.1	132.6	194.8	117.0	147.5
July	195.1	137.1	156.7	173.7	197.1	216.8	134.8	195.9	117.3	150.8
Aug.	196.3	144.9	158.5	174.5	199.7	216.6	136.8	196.3	117.7	152.4
Sept.	196.2	145.4	159.1	174.5	201.0	215.2	137.3	198.1	118.5	152.7
Oct.	195.0	145.5	159.2	173.6	201.6	211.5	137.8	198.8	118.7	153.7
Nov.	193.4	145.5	159.2	172.2	201.4	207.5	137.9	198.7	118.8	153.9
Dec.	192.5	145.5	159.2	171.4	200.4	205.0	137.8	198.5	119.6	145.0
Monthly av.	192.7	138.3	153.4	171.2	198.0	210.2	133.9	195.8	117.4	149.9
1949										
Jan.	191.5	147.0	159.5	170.9	196.5	204.8	138.2	196.5	119.7	154.1
Feb.	189.2	149.1	160.0	169.0	195.1	199.7	138.8	195.6	119.9	154.1
March	189.4	149.1	160.0	169.5	193.9	201.8	138.9	193.8	120.1	154.4
April	189.2	144.9	158.1	169.7	192.5	202.8	137.4	191.9	120.3	154.6
May	188.3	140.7	154.7	169.2	191.3	202.4	135.4	189.5	120.4	154.5
June	188.3	142.3	154.7	169.6	190.3	204.3	135.6	187.3	120.6	154.2
July	186.8	143.0	154.8	168.5	188.5	201.7	135.6	186.8	120.7	154.3
Aug.	186.6	143.4	154.9	168.8	187.4	202.6	135.8	184.8	120.8	154.8
Sept.	187.2	145.4	156.4	169.6	187.2	204.2	137.0	185.6	121.2	155.2
Monthly av.*	188.0	145.0	156.0	169.0	190.0	203.0	137.0	189.0	120.6	154.5

* IRON AGE estimate.

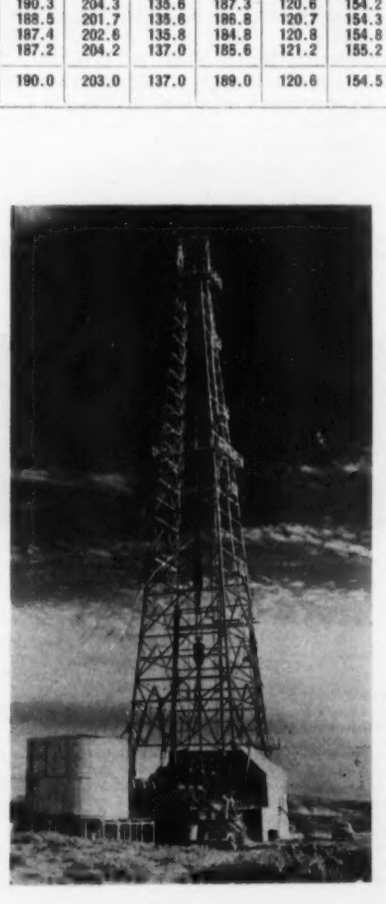
THE NATIONAL DEBT

Gross National Debt Outstanding, End of Month

(Millions of dollars)

Source: U. S. Treasury Dept.

	Direct Debt					Obligations Guaranteed by U. S. Government
	Total	Interest-Bearing			Non-Interest Bearing	
		Total	Public Issues	Special Issues		
1935 monthly average	$30,557	$29,596	$28,868	$728	$961	$4,494
1936 monthly average	34,405	33,699	33,067	632	707	4,662
1937 monthly average	37,286	36,716	34,489	2,227	571	4,645
1938 monthly average	39,439	39,911	35,755	3,156	528	4,992
1939 monthly average	41,961	41,465	37,234	4,231	496	5,704
1940 monthly average	45,039	44,471	39,102	5,370	568	5,917
1941 monthly average	58,020	57,533	50,551	6,982	487	6,324
1942 monthly average	108,170	107,308	98,276	9,032	862	4,301
1943 monthly average	165,877	164,508	151,805	12,703	1,370	4,230
1944 monthly average	230,630	228,891	212,565	16,326	1,739	1,514
1945: June	258,682	256,357	237,545	18,812	2,326	433
1945: December	278,115	275,694	255,693	20,000	2,421	567
1946: June	269,422	268,111	245,779	22,332	1,311	476
1946: December	259,148	257,649	233,064	24,585	1,500	339
1947: June	258,286	255,113	227,747	27,366	3,173	90
1947: December	256,900	254,205	225,250	28,955	2,695	81
1948: June	252,292	250,063	219,852	30,211	2,229	73
1948: December	252,800	250,579	218,865	31,714	2,220	55
1949: January	252,620	250,435	218,675	31,760	2,186	38
February	252,721	250,603	218,799	31,804	2,118	26
March	251,642	249,573	217,647	31,926	2,068	24
April	251,530	249,509	217,676	31,833	2,021	23
May	251,889	249,890	217,975	31,914	2,000	23
June	252,770	250,762	217,986	32,776	2,009	27
July	253,877	251,880	218,831	33,049	1,996	26
August	255,852	253,921	220,563	33,358	1,931	27
September	256,680	254,756	220,842	33,914	1,923	29



Metal Industry Facts

Metal products
General

FEDERAL RESERVE INDEX OF INDUSTRIAL PRODUCTION
1935-39 = 100

Source: Federal Reserve System

	Combined Index	Manufacturers			Minerals		
		Total	Durable Manufactures Total	Nondurable Manufactures Total	Total	Fuels	Metals
1935 monthly av.	87	87	83	90	86	89	73
1936 monthly av.	103	104	108	100	99	99	102
1937 monthly av.	113	113	122	106	112	109	127
1938 monthly av.	89	87	78	95	97	99	86
1939 monthly av.	109	109	109	109	106	105	113
1940 monthly av.	125	126	139	115	117	114	134
1941 monthly av.	152	168	201	142	125	122	149
1942 monthly av.	199	212	279	158	129	125	148
1943 monthly av.	239	258	380	176	132	132	126
1944 monthly av.	235	252	253	171	140	145	113
1945 monthly av.	203	214	274	166	137	143	101
1946 monthly av.	170	177	192	165	134	142	88
1947 monthly av.	187	194	220	172	149	155	118
1948 monthly av.	192	198	225	177	155	161	120
1948							
Jan.	189	197	226	173	149	160	81
Feb.	190	197	224	176	149	161	83
Mar.	188	197	228	173	136	146	82
Apr.	186	193	217	174	145	149	126
May	192	197	222	177	164	168	144
June	193	199	223	179	163	164	153
July	187	193	220	171	158	160	147
Aug.	194	200	224	180	164	166	149
Sept.	197	203	227	185	160	162	148
Oct.	199	205	232	183	161	166	131
Nov.	195	202	229	179	160	167	116
Dec.	190	197	229	171	151	164	78
1949 monthly av.*	177	184	206	165	138	138	121
1949							
Jan.	187	195	225	170	143	156	68
Feb.	185	193	223	168	143	155	78
Mar.	181	190	221	164	131	137	93
Apr.	177	183	212	159	146	148	134
May	174	179	202	160	148	149	142
June	170	176	195	161	137	135	151
July	164	170	186	157	128	125	149
Aug.	173	180	194	169	134	134	135
Sept.	177	186	199	176	123	122	127

* Iron Age estimate.

New Housing Starts

Source: U. S. Department of Labor

Month	New Non-Farm Units Started		
	1947	1948	1949
January	39,300	53,500	50,000
February	42,800	50,100	50,400
March	56,000	76,400	69,400
April	67,100	99,500	88,300
May	72,900	100,300	95,400
June	77,200	97,800	95,500
July	81,100	95,000	98,100
August	86,300	86,600	98,000†
September	93,800	82,200	100,000†
October	94,000	73,400	100,000†
November	79,700	63,600	90,000*
December	58,800	52,900	74,900*
Total	849,000	931,300	1,008,000*
Monthly av.	70,750	77,600	84,000*

† Preliminary.
* IRON AGE estimate.

Farm Tractor Sales

Production and Domestic Sales for Farm Use of Wheel Tractors by Belt Horsepower Range: 1947 and 1948

Source: Farm Implement News

	1947	1948
Production:		
Under 25 HP	292,743	237,848
25 to 35 HP	102,122	228,279
35 HP and over	38,469	62,961
Domestic Sales:		
Under 25 HP	249,540	194,779
25 to 35 HP	75,304	19,2688
35 HP and over	16,976	32,877

CONSUMERS EXPENDITURES, CLASSIFIED

Consumers Consumption Expenditures—Annual Rates: 1935 to 1949 (Billions of dollars)

Source: Dept. of Commerce

	Total	Durable Goods			Nondurable Goods						Services					
		Automobiles and Parts	Furniture and Household Equipment	Other Durable Goods	Clothing and Shoes	Food and Alcoholic Beverages	Gasoline and Oil	Semi-durable Housefurnishings	Tobacco	Other Nondurable Goods	Household Operation	Housing	Personal Service	Recreation	Transportation	Other Services
1935	56.2	1.9	2.5	0.8	5.9	16.3	1.7	0.5	1.4	3.5	3.0	7.6	1.2	1.3	1.5	7.1
1936	62.5	2.3	3.1	1.0	6.5	18.5	1.9	0.7	1.5	3.8	3.2	7.9	1.3	1.4	1.7	7.7
1937	67.1	2.4	3.4	1.2	6.7	20.0	2.1	0.7	1.7	4.0	3.5	8.4	1.5	1.6	1.8	8.2
1938	64.5	1.6	3.0	1.1	6.6	19.0	2.1	0.6	1.7	3.9	3.4	8.7	1.4	1.5	1.7	7.9
1939	67.5	2.1	3.4	1.2	7.0	19.3	2.2	0.8	1.8	4.2	3.6	8.9	1.4	1.6	1.9	8.1
1940	72.1	2.1	3.8	1.3	7.4	20.7	2.3	0.8	1.9	4.5	3.8	9.2	1.6	1.7	2.0	8.3
1941	82.3	3.3	4.8	1.6	8.8	24.4	2.6	1.0	2.1	5.1	4.0	9.9	1.8	1.8	2.2	8.9
1942	91.2	0.7	4.5	1.9	11.0	30.5	1.9	1.1	2.3	6.0	4.5	10.6	2.1	2.1	2.7	9.3
1943	102.2	0.8	3.8	2.2	13.7	35.3	1.2	1.3	2.6	6.9	5.0	11.1	2.5	2.3	3.5	10.1
1944	111.6	0.9	3.7	2.5	15.3	38.9	1.2	1.4	2.6	7.7	5.6	11.7	2.7	2.7	3.7	11.1
1945	123.1	1.1	4.4	3.0	17.1	43.0	1.6	1.4	2.9	8.8	6.1	12.2	2.9	3.0	3.9	11.6
1946	147.8	4.4	8.2	3.9	18.6	51.0	3.0	1.8	3.5	8.9	6.3	13.1	3.5	3.7	4.5	13.4
1947	166.9	7.2	10.8	4.0	19.1	57.8	3.5	1.9	3.9	10.0	7.0	14.5	3.7	3.9	4.8	14.9
1948	178.8	8.2	11.4	4.0	20.0	61.1	4.1	1.9	4.1	10.9	7.7	15.9	3.7	3.9	5.1	16.8
1948: First quarter†	175.2	7.5	11.2	3.9	19.3	61.0	3.9	1.9	4.1	11.1	7.6	15.4	3.7	3.9	5.0	15.8
Second quarter	178.7	8.0	11.9	4.0	20.2	61.2	4.2	1.9	4.1	10.9	7.6	15.8	3.7	3.9	4.9	16.6
Third quarter	180.3	8.7	12.1	4.0	19.9	60.5	4.2	2.0	4.3	10.9	7.7	16.0	3.7	4.0	5.2	17.2
Fourth quarter	180.9	8.5	10.4	3.9	20.5	61.7	4.3	1.9	4.1	10.8	7.9	16.3	3.7	4.1	5.3	17.6
1949*	179.4	9.4	10.2	3.8	19.3	60.0	4.2	1.9	4.1	10.1	8.0	17.1	3.7	4.0	5.2	18.1
1949: First quarter	177.9	8.6	10.2	3.7	19.3	60.0	4.1	2.0	4.1	10.4	8.1	16.6	3.6	4.0	5.2	17.9
Second quarter	178.2	9.6	10.1	3.8	19.1	59.2	4.2	1.8	4.1	10.1	8.0	17.0	3.7	4.0	5.1	18.1

* Iron Age estimate. † Seasonally adjusted, quarterly totals, at annual rates.

FREIGHT CAR CARRYING CAPACITY, NET TONS

Class 1 Railroads

Source: American Railroad Car Institute

	Box	Flat	Stock	Gondola and Hopper	Tank	Refrig.	Others	Average
1929	41.1	43.2	37.2	53.6	44.7	32.9	51.9	46.3
1932	42.	44.2	37.9	54.	45.	33.4	52.8	47.
1935	43.1	46.1	38.3	54.8	45.	35.2	53.4	48.3
1936	43.5	46.7	38.5	55.2	44.8	35.4	55.8	48.8
1937	43.9	46.9	38.9	55.4	45.	36.2	54.4	49.2
1938	44.2	47.1	39.1	55.6	45.	36.3	54.6	49.4
1939	44.5	47.3	39.3	55.7	45.	36.3	54.1	49.7
1940	44.8	47.7	39.5	56.	45.3	36.9	50.9	50.
1941	45.2	48.	39.5	56.2	45.3	37.	51.2	50.3
1942	45.5	48.6	39.6	56.3	46.1	36.8	51.4	50.5
1943	45.5	48.9	39.6	56.5	46.	36.8	50.8	50.7
1944	45.8	49.1	39.5	56.4	46.1	36.9	49.7	50.8
1945	46.2	49.2	39.5	56.6	46.1	36.9	50.2	51.1
1946	46.3	49.3	39.5	56.8	46.1	37.	49.4	51.2
1947	46.7	49.4	39.5	56.8	46.2	37.1	50.9	51.5
1948	47.1	49.6	39.6	57.2	46.3	37.1	51.4	51.9
1949*	47.5	49.8	39.7	57.6	46.4	37.1	51.9	52.3

* Estimated

Integral HP Motors and Generators Quarterly Index of Orders

Average Quarter 1936 = 100

Source: National Electrical Manufacturers Assn.

YEAR	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	Avg.
1934	45.8	50.0	46.3	54.0	49.0
1935	54.6	63.0	70.2	70.7	64.6
1936	75.2	109.4	103.2	112.2	100.0
1937	150.5	137.6	110.4	83.9	120.6
1938	68.7	68.4	61.3	67.1	66.4
1939	78.5	82.2	95.8	137.2	98.4
1940	102.7	124.9	147.7	229.4	151.2
1941	260.4	335.7	336.7	329.4	315.5
1942	457.0	684.6	554.4	435.6	527.9
1943	560.2	373.0	400.1	414.0	436.8
1944	284.6	341.8	345.2	314.1	321.4
1945	293.9	274.7	234.8	307.4	277.7
1946	288.1	418.1	468.0	492.8	416.7
1947	459.1	393.7	308.2	391.6	388.1
1948	294.8	329.2	289.9	301.2	303.8
1949	262.0	240.0	221.0	230.0*	238.2*

*Iron Age estimate.

STEEL REQUIREMENTS PER RAILROAD FREIGHT CAR

(Tons)

Source: American Railway Car Institute

	Box 40' 6" 50-T	Box 50' 6" 50-T	Gon. H. S. 50-T	Gon. L. S. 70-T	Gon. 65' 70-T	Hopper 50-T	Hopper 70-T	Cov. Hopper 70-T	Ore 70-T	Flat 50-T	Flat 70-T	Refr. 40-T	Stock 40-T	Tank 10M-Gal ICC-103 50-T	Tank Hi-Press ICC-105 50-T	All Other Types on Order	Weighted Average per Car Basis Cars on Order 9/1/48
Billets and slabs	0.27	0.28	0.36	0.36	....	0.35	0.40	0.31	0.06	0.27	0.32	0.30	0.27	0.30	0.60	0.25	0.328
Shapes	4.15	5.14	3.52	5.35	5.40	3.89	4.81	4.96	2.67	5.27	7.32	4.15	4.15	2.50	3.20	4.05	4.237
Plates	2.85	2.92	8.71	8.07	12.60	5.87	7.86	6.06	6.66	7.39	8.76	2.85	2.85	10.70	18.60	6.00	6.219
Bars	0.63	1.33	0.58	0.78	1.00	0.75	0.75	0.94	1.11	0.87	1.86	0.63	0.63	0.10	0.12	1.20	0.702
Pipe	0.10	0.12	0.10	0.13	0.13	0.10	0.10	0.10	0.09	0.11	0.11	0.10	0.10	0.16	0.27	0.10	0.108
Sheets and strip	2.97	4.99	0.08	0.08	....	0.29	0.29	3.05	0.03	0.12	0.11	4.60	0.50	0.60	3.60	0.40	1.365
Wheels, chilled iron	3.00*	3.00	3.00			3.00*				3.00		2.80	2.80*	3.00*	3.00*		
Wheels, rolled steel	2.24			2.44	2.44	2.24	2.44	2.44	2.44		2.44		2.24	2.24	2.24	2.44	2.807
Axles	1.67	1.67	1.67	2.03	2.03	1.67	2.03	2.03	2.03	1.67	2.03	1.41	1.41	1.67	1.67	2.00	1.759
Other Forgings	0.46	0.46	0.66	0.66	0.25	0.51	0.60	0.87	0.13	0.41	0.41	0.46	0.46	0.75	0.99	0.85	0.552
Steel castings	3.60	3.60	4.25	4.25	3.39	3.60	4.18	4.52	3.60	3.60	4.11	3.60	3.60	3.60	3.60	4.19	3.838
Miscellaneous	1.07	1.07	1.05	1.11	0.60	0.93	1.06	1.19	2.33	1.12	1.13	1.07	1.07	1.00	1.10	1.00	1.054
Totals	20.77	24.58	23.98	25.28	27.84	20.96	24.52	26.47	21.15	23.83	28.60	21.97	17.84	24.38	34.56	22.47	22.969

*Included in Total

STEEL USE IN HOMES

Steel products, in pounds, which may be used in the construction of a six-room home.

Source: American Iron and Steel Institute

	Lb.
Metal lath	1800
Gas, water and heating pipe	1200
Steel window frames (16 at 50 lb each)	800
Kitchen equipment	800
Stove, refrigerator, sink, table top, kitchen cabinets, ventilators, washing machine, steel tile	
Structural shapes and columns	680
Heating equipment	640
Steel furnace, hot water tank, fuel oil tank	
Nails and miscellaneous wire	600
Door frames and sills	480
Gutters and downspouts	475
Bathroom	300
Bathtub, lavatory, medicine cabinet, shower cabinet, toilet (porcelain)	
Flashing and miscellaneous sheets	200
Steel doors (fire protection)	160
Electrical steel conduit	140
Hardware	90
Locks, knobs, hinges	
Radiator grilles	75
Screens	32
Laundry tubs	10
Total* Lb.	8482

* Some of the items may be lacking in some homes, or may be fashioned of other materials so that the total weight may be less than that which is given.

CARS OF REVENUE FREIGHT LOADED

Source: Assn. of American Railroads

Period	Total Revenue Freight Loaded	Grain and Grain Products	Live Stock	Coal	Coke	Forest Products	Ore	Merchandise L.C.L.	Miscellaneous
1929	52,827,925	2,396,195	1,419,191	9,095,271	634,427	3,248,408	2,281,566	13,205,698	20,547,169
1932	28,179,952	1,853,381	949,287	5,338,938	223,766	899,198	210,367	9,069,736	9,635,279
1935	31,504,134	1,577,053	714,495	6,144,691	339,628	1,383,872	1,036,432	8,080,675	12,227,288
1936	38,109,112	1,804,767	759,092	6,937,416	480,043	1,682,582	1,623,008	8,275,977	14,546,227
1937	37,670,464	1,788,966	721,601	6,976,938	507,817	1,828,032	2,207,632	8,485,868	15,173,610
1938	30,457,078	1,967,318	702,920	5,540,739	274,639	1,417,859	845,965	7,681,847	12,026,781
1939	33,911,498	1,940,054	694,246	6,062,520	413,686	1,584,336	1,615,036	7,830,935	13,760,675
1940	36,357,854	1,834,593	685,262	6,819,614	548,686	1,799,650	2,148,428	7,679,389	14,842,212
1941	42,352,127	2,027,824	651,310	7,606,315	678,841	2,189,840	2,682,726	8,039,515	18,475,756
1942	42,771,102	2,185,022	745,180	8,356,430	731,777	2,445,231	3,015,745	5,536,792	19,754,925
1943	42,439,951	2,648,308	837,777	8,507,036	751,887	2,228,907	2,815,572	5,079,720	19,570,944
1944	43,408,295	2,520,733	892,145	8,889,518	750,685	2,271,450	2,648,589	5,427,926	20,007,247
1945	41,918,120	2,733,968	893,525	8,296,208	694,707	2,038,992	2,474,338	5,526,509	19,257,875
1946	41,341,278	2,497,043	924,919	8,004,021	686,890	2,263,248	1,995,721	6,326,295	18,744,143
1947	44,502,186	2,725,555	770,123	9,088,131	732,130	2,414,548	2,651,024	6,071,293	20,049,284
1948	42,833,902	2,467,286	630,873	8,729,745	735,801	2,359,193	2,780,635	5,457,824	19,672,545
1949*	36,161,456	2,657,189	565,840	5,027,280	586,509	1,960,636	2,309,515	4,685,708	17,368,779
1947: First quarter	10,517,733	681,946	183,707	2,412,285	186,550	612,110	166,002	1,525,403	4,749,730
Second quarter	11,151,864	603,977	169,829	2,176,286	178,839	604,883	856,540	1,861,559	4,999,951
Third quarter	11,436,075	801,355	182,228	2,093,285	172,934	616,369	1,050,322	1,473,236	5,046,346
Fourth quarter	11,396,516	638,377	234,359	2,406,275	193,807	581,186	578,160	1,511,095	5,253,257
1948: First quarter	9,856,383	510,890	124,469	2,155,710	187,379	552,516	182,100	1,394,022	4,749,497
Second quarter	10,910,817	552,185	154,344	2,195,189	170,088	585,696	931,153	1,399,437	4,922,725
Third quarter	11,246,528	740,063	144,110	2,227,097	183,791	653,999	1,021,096	1,327,183	4,949,189
Fourth quarter	10,820,174	664,348	207,950	2,151,749	194,543	566,982	646,286	1,337,182	5,051,134
1949: First quarter	8,987,425	562,133	119,723	1,757,383	196,483	458,307	222,606	1,206,392	4,482,418
Second quarter	9,753,724	622,159	112,749	821,236	169,795	499,311	950,859	1,197,220	4,380,395
Third quarter	9,070,307	762,897	143,368	1,248,681	120,231	493,018	886,050	1,110,098	4,305,986
Fourth quarter*	8,350,000	710,000	190,000	1,200,000	100,000	510,000	250,000	1,170,000	4,220,000

* Iron Age estimate.

Metal Industry Facts

Metal products
General

HOUSEHOLD APPLIANCES

SALES AND RETAIL VALUE OF APPLIANCES: 1940 TO 1948

Source: Electrical Merchandising

Product	1940		1941		1946		1947		1948	
	Number Sold	Retail Value	Number Sold	Retail Value	Number Sold	Retail Value	Number Sold	Retail Value	Number Sold	Retail Value
Cleaners, vacuum:										
Floor type	1,340,590	$73,155,645	1,670,129	$93,600,908	2,289,500	$155,228,100	3,800,687	$285,388,000	3,500,000	$268,345,000
Hand type	358,604	5,347,994	383,381	5,726,377	80,000	1,505,880	...	...	295,000	7,839,000
Ironing machines	175,466	10,219,140	259,668	14,489,056	175,000	13,146,000	599,250	75,821,800	470,000	65,221,900
Irons, total	5,171,000	18,853,500	5,585,000	21,099,750	9,600,000	82,959,000	9,400,000	100,046,000	6,500,000	80,925,000
Automatic	2,597,000	12,959,000	2,900,000	14,790,000	7,000,000	67,645,000	8,009,000	90,400,000	5,850,000	75,757,500
Non-automatic	2,574,000	5,894,500	2,685,000	6,309,750	2,600,000	15,314,000	1,400,000	9,646,000	650,000	5,167,500
Ranges	450,000	62,775,000	728,000	103,376,000	576,700	107,266,200	1,200,000	276,000,000	1,600,000	376,000,000
Refrigerators	2,600,000	395,200,000	3,500,000	542,500,000	2,100,000	434,700,000	3,400,000	867,000,000	4,530,000	1,177,800,000
Washing machines:										
Total	1,552,666	113,156,109	2,014,435	159,329,970	2,123,980	256,283,580	4,281,000	575,814,000	4,710,000	750,200,000
Electric (standard size)	1,454,831	104,485,962	1,892,435	148,556,150	2,047,380	247,303,000	3,657,000	541,236,000	4,285,600	722,123,600
Gas engine (standard size)	97,835	8,670,147	122,000	10,773,820	76,600	8,980,580	126,000	18,144,000	114,400	17,848,400
Small	...	...	...	...	...	...	498,000	16,434,000	310,000	10,230,000
Water heaters, storage	125,000	10,125,000	205,000	17,015,000	488,000	58,560,000	1,100,000	143,000,000	1,040,000	143,000,000

ELECTRIC APPLIANCES

Monthly Index of Major Domestic Unit Sales Billed
Average Month 1936 = 100

Source: National Electrical Manufacturers Association

Year	January	February	March	April	May	June	July	August	September	October	November	December	Average
1934	32.2	42.1	82.1	88.8	72.3	59.5	49.8	54.4	56.8	52.3	43.8	42.9	53.1
1935	43.3	58.8	82.4	93.4	100.1	77.3	70.7	72.8	75.7	83.4	69.0	66.6	74.5
1936	63.5	75.8	122.2	121.6	126.2	113.4	99.0	92.1	106.2	103.4	82.2	94.4	100.0
1937	95.2	104.4	170.4	163.0	148.3	144.4	117.1	102.9	109.1	90.9	62.5	58.1	113.9
1938	68.2	76.3	93.6	85.9	79.3	74.2	67.4	76.1	74.1	75.0	61.2	59.3	74.2
1939	87.5	90.9	111.2	93.9	102.7	95.7	73.1	86.8	92.2	93.3	78.6	65.2	89.2
1940	107.3	110.5	124.6	126.7	131.1	108.5	94.8	96.9	107.0	116.5	88.1	86.6	108.2
1941	133.5	146.1	179.1	191.2	188.1	186.4	185.5	148.0	179.2	145.8	110.1	131.5	160.4
	Insufficient data available for computing indexes for the years 1942-1945 inclusive												
1946	105.3	84.3	102.3	128.3	121.4	168.6	181.9	206.6	197.3	234.0	228.2	215.6	164.5
1947	223.0	247.3	301.3	306.2	310.1	329.8	280.7	265.8	343.8	377.8	333.1	352.2	305.9
1948	324.6	329.6	389.7	341.1	318.3	358.5	275.8	334.0	387.7	383.8	341.8	279.3	337.0
1949	326.8	273.2	214.0	164.0	158.0	212.0	206.0	264.0	306.0	n.a.	n.a.	n.a.	*252.0

* IRON AGE estimate.
N. A. Not available

FARM TRACTOR AGE

Wheel Tractors on Farms by Age and Drawbar HP*

Source: Farm Implement News

Age and Drawbar HP Distribution by Age	North-east Pct.	Corn Belt Pct.	Lake States Pct.	Plains Pct.	South-east Pct.	Okla.-Texas Pct.	Moun-tain Pct.	Pacific States Pct.	United States Pct.
Under 5 years	36	30	32	27	40	28	48	39	32
5 to 9 years	37	44	40	38	44	42	36	34	41
10 to 14 years	12	16	13	14	10	18	7	9	14
15 to 19 years	9	7	11	19	4	10	7	9	10
20 years and over	6	3	4	2	2	2	2	9	3
Distribution by Drawbar HP									
Under 12 HP	31	18	24	15	19	27	13	32	21
12.0 to 18.4 HP	41	42	43	36	45	38	40	46	42
18.5 to 24.9 HP	23	33	28	36	28	24	31	15	29
25.0 HP and over	5	7	5	13	8	11	16	7	8

*As of Jan. 1, 1949. Excludes garden and homemade tractors.

DOMESTIC RAILROAD PASSENGER CARS ORDERED

Carbuilders and Railroad Shops

Source: American Railway Car Institute

	Coach	Coach and Comb.	Baggage and Express	Express Refr. and Milk	Sleeping and Comb.	Parlor, Club, etc.	Dining	Postal and Comb.	All Other	Total
1929	390	98	351	505	490	79	103	184	183	2383
1932	2	1	4	2	1	0	0	4	30	44
1935	14	16	7	55	18	6	10	7	0	133
1936	294	36	33	0	5	26	44	10	1	451
1937	136	23	56	110	171	18	37	8	6	567
1938	65	28	42	0	88	10	15	10	2	278
1939	97	20	9	0	125	18	38	12	2	321
1940	220	26	8	0	53	6	48	13	5	379
1941	164	13	69	0	197	16	36	46	8	549
1942	0	1	2	0	0	0	0	0	31	34
1943	14	2	3	0	0	0	4	12	1650	1685
1944	461	36	20	0	26	16	53	12	101	725
1945	296	17	134	25	570	84	98	54	1767	2993
1946	311	40	22	0	587	53	143	46	36	1238
1947	132	0	22	0	72	36	19	29	6	316
1948	143	0	51	0	156	20	25	10	101	506
1949*	46	0	6	0	30	6	12	6	1	107

*January thru November.

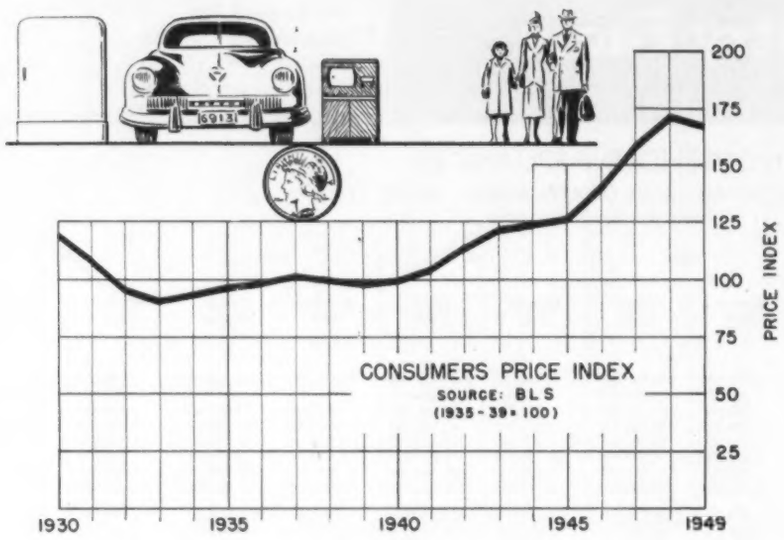
MATERIALS USED BY AUTOMOBILE INDUSTRY

Typical examples of quantities used

Source: Automobile Manufacturers Assn.

Material	Automotive Consumption
Steel (tons)—all forms	7,185,016
—bars	1,634,827
—sheets and strip	4,702,260
Iron (malleable—gray iron not included with malleable)	339,500
Copper (tons)	135,000
Lead (tons)	276,400
Zinc (tons)	87,500
Tin (tons)	11,100
Aluminum (tons)	27,000
Nickel (tons)	11,500
Plate glass (sq ft)	131,496,361
Leather, upholster (sq ft)	34,518,000
Glycerine (lb)*	19,000,000
Anti-freeze solution (gal)	35,000,000
Lumber, hardwood (board feet)	188,000,000
Lumber, softwood (board feet)	72,000,000
Rubber, crude (long tons)	518,800
Cotton (bales)	950,000
Wool (lb)	22,000,000
Hogs (fats, hair)	63,500
Soy beans (bu)	850,000
Sugar cane (tons)	1,027,400
Turpentine (lb)	8,500,000
Corn (bu)	1,960,000
Mohair (lb)	11,800,000
Cattle (hides)	601,000
Gasoline (gal)	22,001,356,000

* Does not include anti-freeze solutions.



STEEL USED IN AN AUTOMOBILE

Pounds of steel used in a typical passenger car

Source: American Iron & Steel Institute

	Lb.
Hot-rolled bars	532
Cold-rolled bars	81
Wire products	187
Pipe and tubes	10
Structural shapes	30
Hot-rolled sheets and strip	1,652
Cold-rolled sheets and strip	964
Plates	45
Terneplate	43
Total	3,544

STEEL USED BY THE AUTOMOBILE INDUSTRY

Estimate at various production levels

Source: THE IRON AGE

Number of Cars and Trucks Produced	Estimated Total Steel and Strip Required (net tons)	Estimated Total Steel, All Types Required (net tons)
4,000,000	4,420,000	7,180,000
5,000,000	5,520,000	8,980,000
6,000,000	6,630,000	10,780,000

EXPENDITURES FOR NEW CONSTRUCTION

Source: Dept. of Commerce, Dept. of Labor

Type of Construction	Expenditures (in millions of dollars)										
			1949								
	1948	1949*	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.
Total new construction[2]	18,775	19,088	1,293	1,172	1,267	1,378	1,585	1,745	1,853	1,893	1,902
Private construction	14,563	13,500	1,002	905	951	997	1,117	1,239	1,309	1,335	1,345
Residential building (nonfarm)	7,223	6,640	475	400	420	445	530	600	650	660	680
Nonresidential building (nonfarm)	3,578	3,153	285	271	262	251	257	268	269	263	262
Industrial	1,397	870	110	104	96	89	82	76	72	71	70
Commercial	1,224	975	82	78	79	78	83	92	91	85	83
Warehouses, office and loft buildings	323	287	29	27	25	23	23	24	24	24	22
Stores, restaurants and garages	901	693	53	51	54	53	60	68	67	61	61
Religious	236	343	26	25	24	24	26	28	30	31	31
Educational	239	252	22	21	20	19	19	20	21	22	22
Social and recreational	211	246	20	19	19	19	20	22	23	22	22
Hospital and institutional	116	188	10	11	11	12	14	15	17	18	20
Hotel	155	170	15	13	13	12	13	15	15	14	14
Miscellaneous											
Farm construction	500	434	12	10	18	30	40	50	60	75	65
Residential											
Nonresidential											
Public utilities	3,262	3,462	230	224	251	271	290	321	330	337	338
Railroad	379	392	27	25	27	31	34	36	37	36	36
Local transit											
Pipeline	2,170	2,465	158	153	167	180	196	223	237	246	247
Electric light and power											
Gas											
Telephone and telegraph	713	661	45	46	57	60	60	62	56	55	55
Public construction	4,212	5,268	291	267	316	381	468	506	544	558	557
Residential building	85	204	8	8	10	14	15	17	19	23	24
Nonresidential building	1,057	1,664	110	108	122	134	141	144	148	152	155
Industrial	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Commercial											
Public administration											
Educational	567	838	60	60	64	68	70	71	72	74	75
Social and recreational											
Hospital and institutional	219	458	28	27	31	34	36	39	40	43	45
Miscellaneous	271	367	22	21	27	32	35	34	36	35	35
Military and naval facilities	137	112	7	7	9	8	9	9	9	11	11
Highway	1,585	1,688	68	52	68	100	160	185	210	215	210
State											
County											
Municipal											
Federal											
Sewage disposal	481	564	41	39	42	46	49	51	51	52	52
Water supply											
Miscellaneous public service enterprises	108	154	6	5	8	9	9	8	9	9	9
Conservation and development	597	722	40	39	45	56	67	74	75	78	76
Bureau of Reclamation											
Army Engineers											
Tennessee Valley Authority											
Other											
All other public	162	187	11	9	12	14	18	18	19	20	20

[1] Not shown separately.
[2] Less than $500,000.
* Iron Age estimate.

LOCOMOTIVES ORDERED DOMESTIC ONLY

Source: Railway Age

	Steam	Diesel-Electric	Electric	Total
1929	1,055	80	95	1,230
1932	5	7	0	12
1935	30	60	7	97
1936	435	77	24	536
1937	173	145	36	354
1938	36	160	29	225
1939	119	249	32	400
1940	207	492	13	712
1941	302	1,104	38	1,444
1942	363	894	12	1,269
1943	413	635	0	1,048
1944	74	680	3	757
1945	148	691	6	845
1946	55	989	8	1,052
1947	79	2,149	1	2,229
1948	69	2,678*	2	2,749
1949†	13	935*	7	955

* 1948 Diesel orders shown as units. Previous orders shown as locomotives which may include one or more units.
† January through November.

ADDRESSES AND OFFICERS OF TECHNICAL SOCIETIES AND ASSOCIATIONS

Assn. of American Railroads
Transportation Bldg., Washington 6, D. C.
Vice-Pres.: J. H. Aydelott
Chairman: A. H. Gass

American Railway Car Institute
19 Rector St., New York 6, N. Y.
Pres.: S. M. Felton
Secy.-Treas.: W. C. Tabbert

National Assn. of Manufacturers
14 W. 49th St., New York, N. Y.
Pres.: C. A. Putnam
Mang. Dir.: E. Bunting

National Electrical Manufacturers Assn.
155 E. 44th St., New York, N. Y.
Mang. Dir.: W. J. Donald
Gen. Secy.: G. B. Cumning

Edison Electric Institute
420 Lexington Ave., New York 17, N. Y.
Pres.: E. L. Lindseth
Mang. Dir. and Vice-Pres.: Col. H. S. Bennion

Gas Appliance Manufacturers Assn., Inc.
60 E. 42nd St., New York 17, N. Y.
Mang. Dir. and Secy.: H. L. Whitelaw

National Petroleum Assn.
Munsey Bldg., Washington, D. C.
Pres.: W. F. Zehrung
Gen. Coun.: F. B. Dow

Automobile Manufacturers Assn.
New Center Bldg., Detroit, Mich.
Pres.: G. W. Mason
Mang. Dir.: W. J. Cronin

Metal Industry Facts

Metal products
General

CONSUMER INCOME

By Sources—Annual Totals: 1935 to 1949
(Billions of Dollars)

Source: Dept. of Commerce

Year	Total	Wage and Salary Receipts						Other Labor Income	Proprietors' and Rental Income	Personal Interest Income and Dividends	Transfer Payments	Total Non-agricultural Income
		Total	Employer Disbursements				Less Employee Contributions for Social Insurance					
			Total	Commodity Producing Industries	Distributive Industries	Service Industries	Government					
1935	59.9	36.3	36.5	13.5	10.7	5.8	6.5	0.2	0.4	12.1	8.6	2.4	53.4
1936	68.4	41.6	41.8	15.8	11.8	6.3	7.9	0.2	0.5	12.8	10.1	3.5	62.8
1937	74.0	45.4	45.9	18.4	13.1	6.9	7.5	0.6	0.5	15.4	10.3	2.4	66.5
1938	68.3	42.3	42.8	15.3	12.6	6.7	8.2	0.6	0.5	14.0	8.7	2.8	62.1
1939	72.6	45.1	45.7	17.4	13.3	6.9	8.2	0.6	0.5	14.7	9.2	3.0	66.3
1940	78.3	48.9	49.6	19.7	14.2	7.3	8.5	0.7	0.6	16.3	9.4	3.1	71.5
1941	95.3	60.9	61.7	27.5	16.3	7.6	10.2	0.8	0.6	20.8	9.9	3.1	86.1
1942	122.7	80.7	81.9	39.1	18.0	8.6	16.1	1.2	0.7	28.4	9.7	3.2	109.4
1943	150.3	103.6	105.4	49.0	20.1	9.5	26.8	1.8	0.9	32.8	10.0	3.0	135.2
1944	165.9	114.9	117.1	50.4	22.7	10.5	33.5	2.2	1.3	35.5	10.6	3.8	150.5
1945	171.9	115.3	117.7	45.9	24.7	11.5	35.6	2.3	1.5	37.5	11.4	6.2	155.7
1946	176.9	109.4	111.5	46.0	30.8	13.7	20.9	2.0	1.6	41.2	13.2	11.4	158.5
1947	193.5	120.2	122.3	54.3	35.2	15.2	17.5	2.1	1.8	45.1	14.8	11.7	173.5
1948	211.9	133.1	135.2	60.4	39.2	16.6	19.1	2.1	2.0	49.5	16.2	11.1	188.8
1948: January†	206.5	128.1	130.3	58.4	37.9	15.9	18.1	2.2	2.0	49.7	15.5	11.2	183.0
February	204.1	127.9	129.9	57.8	38.1	16.0	18.0	2.0	2.0	47.3	15.6	11.3	183.0
March	204.7	127.7	129.8	57.6	37.9	16.1	18.2	2.1	2.0	46.9	15.8	12.3	184.3
April	208.3	128.5	130.5	57.8	38.0	16.3	18.4	2.0	2.0	50.0	15.9	11.9	185.0
May	209.3	130.9	132.9	59.1	38.8	16.5	18.5	2.0	2.0	49.3	15.9	11.2	185.9
June	213.4	132.5	134.7	60.1	39.1	16.7	18.8	2.2	2.0	51.8	15.9	11.2	188.4
July	214.5	134.6	136.8	60.7	39.8	16.9	19.4	2.2	2.0	50.8	16.0	11.1	190.2
August	215.4	136.5	138.7	61.9	40.2	16.9	19.7	2.2	2.0	49.5	16.3	11.1	192.0
September	216.3	137.7	139.9	62.8	40.4	16.7	20.0	2.2	2.0	49.4	16.5	10.7	193.3
October	216.3	138.1	140.3	62.7	40.4	16.9	20.3	2.2	2.0	49.0	16.8	10.4	192.9
November	216.8	137.5	139.7	62.7	39.8	16.9	20.3	2.2	2.0	49.8	16.9	10.4	192.8
December	217.0	137.1	139.4	62.3	40.0	16.9	20.2	2.3	2.0	50.3	16.9	10.7	193.6
1949*: January	215.7	136.6	138.9	61.4	40.2	17.0	20.3	2.3	2.0	49.0	17.0	11.1	192.8
February	212.9	135.0	137.3	60.6	39.5	16.9	20.3	2.3	2.1	47.2	17.1	11.5	191.7
March	212.4	133.5	135.8	58.9	39.4	17.1	20.4	2.3	2.1	47.3	17.1	12.4	191.4
April	212.5	134.7	136.8	58.6	40.5	17.1	20.6	2.1	2.1	46.3	17.2	12.2	192.3
May	213.1	135.0	137.2	58.3	41.1	17.3	20.5	2.2	2.1	46.7	17.3	12.0	192.6
June	212.4	134.0	136.3	58.3	40.4	17.1	20.5	2.3	2.2	46.8	17.3	12.1	191.8
July	209.7	133.7	135.9	58.1	40.2	17.0	20.6	2.2	2.1	44.5	17.3	12.1	191.1
August	211.4	134.4	136.6	58.2	40.5	17.1	20.8	2.2	2.2	45.2	17.3	12.3	192.2
1949*	211.5	134.5	137.0	58.8	40.3	17.0	20.6	2.2	2.1	45.8	17.3	12.0	192.0

* Iron Age estimate.
† Seasonally adjusted, monthly totals, at annual rates.

SUGGESTIONS WANTED

How can this Metal Industry Fact Issue be made more helpful to you? The editors will appreciate suggestions from readers.

TYPICAL ALLOY STEEL USED IN PASSENGER CARS

Source: THE IRON AGE

Part	SAE Steels Used
Axle Shafts	T 1330, 8630, 4063, 8640, 8653
Steering Knuckles and Arms	1340, 5130, 8640, 4053, 8630
Gears, Transmission	1340 Cyanided, 4032 Carb., 8620 Carb., 4620 Carb.
Gears, Differential	8620 Carb., 4620 Carb.
Springs, Coil and Leaf	4068, 9260, 5160
Bolts	1335, 4037, 4042, 3140, 8640

It is estimated that a typical passenger car uses from 260 to 280 lb of alloy steel.

FARM IMPLEMENTS

Selected List of Materials Used in Manufacture—1947

Source: Dept. of Commerce, Census of Manufactures

Metal Shapes	Tractor Industry		All Other Farm Machinery	
	Net Tons	Cost (Thousands)	Net Tons	Cost (Thousands)
Iron Castings, Rough and Semifinished	365,494	$66,097	203,175	$42,936
Steel Castings, Rough and Semifinished	49,238	13,781	9,066	3,474
Steel Shapes and Forms (Total)	576,562	47,514	1,278,347	112,410
Steel by Item				
Carbon				
Bars and Bar Shapes	252,646	20,319	630,852	48,858
Sheet and Strip	68,983	5,556	391,912	36,709
Structural Shapes	28,662	1,961	64,409	5,757
Plates	47,316	3,584	70,545	5,770
Wire	1,229	113	15,744	1,512
All Other	113,422	9,041	51,175	7,020
Alloy				
Bars and Bar Shapes	53,610	4,937	17,065	2,222
All Other	9,891	1,406	34,786	3,221
Stainless	803	597	1,839	1,531
Copper and Copper Base Alloy				
Brass and Wire Mill Shapes	2,997	1,910	1,829	1,426
Castings, Rough and Semifinished	682	548	1,138	867
Aluminum				
Mill Shapes			3,428	1,907
Castings, Rough and Semifinished	2,150	1,764	2,592	2,026

Tractor production of all types for 1947 was 627,291 units.

Continued

SELECTED FARM MACHINERY MANUFACTURED IN U. S.

Source: U. S. Department of Agriculture

	Tractor Mold Board Plows	Corn Binders	Corn (Field) Pickers	Silage Cutters	Grain Binders	Grain Threshers	Combines, Harv. and Thresh.	Manure Spreaders	Tractor Cultivators
1929	122,897	15,246	8,620	8,065	65,069	13,818	36,957	61,000	34,634
1931	26,827	No data	3,243	3,156	15,356	3,954	5,907	19,707	15,631
1935	57,862	19,290	1,845	7,294	47,680	4,619	3,872	31,482	54,519
1936	116,213	19,364	4,052	12,850	66,970	8,622	16,983	53,361	115,957
1937	149,006	16,694	13,586	10,197	32,295	4,996	29,403	60,057	127,188
1938	117,960	12,765	16,722	11,743	47,619	8,649	48,046	27,344	90,760
1939	98,672	5,535	16,044	9,125	15,242	2,781	41,537	33,363	85,547
1940	171,896	9,990	11,638	8,507	No data	2,054	46,552	46,075	104,345
1941	183,497	13,175	15,958	11,403	No data	2,459	54,296	69,618	175,285
1942	132,131	No data	13,640	8,332	5,171	2,146	41,722	56,881	141,704
1943	55,182	3,077	12,592	4,163	3,782	668	29,219	17,448	83,802
1944	121,689	9,709	25,371	8,757	11,317	1,858	44,704	49,522	161,554
1945	158,159	8,699	35,885	9,005	9,054	1,185	51,418	44,997	191,330
1946	162,113	7,218	34,554	9,294	No data	2,583	48,811	44,143	151,489
1947	244,115	No data	66,055	13,222	9,523	1,277	76,638	64,927	245,735
1948	308,805	No data	78,808	10,709	No data	2,161	90,668	118,208	359,057

	One Way Disc Plows or Tillers	Hay Loaders	Pickup Hay Balers	Peanut Pickers	Milking Machines	Power Sprayer and Dusters	Field Cultivators	Sweep Rakes
1929	No data	24,920	2,172	493	24,092	11,324	No data	18,273
1931	7,085	10,042	1,311	365	14,896	5,955	No data	7,118
1935	6,980	8,813	No data	653	4,217	8,180	4,819	5,244
1936	9,651	22,742	No data	994	9,841	9,655	5,755	8,506
1937	15,027	27,256	No data	960	21,502	9,690	11,774	7,094
1938	13,245	17,481	No data	656	18,787	7,920	11,488	7,508
1939	9,408	15,350	454	627	22,798	9,904	6,004	4,783
1940	14,148	20,226	1,464	885	44,374	6,845	8,139	6,497
1941	17,074	26,930	8,200	922	55,711	9,915	13,115	9,397
1942	11,274	19,426	8,601	2,899	37,287	10,363	11,313	9,812
1943	5,363	11,508	5,418	1,340	46,892	7,475	3,718	6,549
1944	12,945	21,065	12,126	811	78,421	13,875	17,618	14,599
1945	13,122	20,591	12,535	1,095	125,413	16,928	21,214	17,699
1946	16,731	25,273	11,072	1,849	146,203	26,599	22,323	40,045
1947	25,670	20,497	26,573	2,315	176,195	57,454	39,564	21,358
1948	35,429	28,472	48,469	2,188	128,589	119,952	74,892	14,901

STEEL USE IN APPLIANCES

Electric Appliance Industry, Shipments of Steel Products:† 1946 to 1949 (Net Tons)

Source: American Iron & Steel Institute

Item	1946	1947	1948	1949	
				8 Months	12 Months*
Ingots, blooms, billets, slabs, sheet bars, and seamless tube rounds		2,092	99	6	10
Wire rods		485	178	142	180
Structural shapes	1,174	1,376	3,321	2,289	3,000
Plates (sheared and universal)	9,400	10,417	8,915	5,141	6,750
Bars:					
Hot-rolled	11,149	14,716	12,567	6,313	8,290
Cold-finished	23,648	44,412	53,609	22,367	30,000
Tool steel	33	35	19	.....	10
Pipe and tubes:					
Mechanical tubing	4,940	10,359	5,493	2,251	3,000
Pressure tubing			6,039	1,782	2,400
Standard pipe			13,567	6,261	8,300
Line pipe	14,775	16,371	382	114	150
Misc. tubular products			2,910	1,159	1,550
Wire:					
Drawn	17,617	21,744	30,741	23,550	30,000
Nails and staples	188	47	559	261	350
Barbed and twisted	.....	.....	4	.....	.....
Black plate:					
Ordinary	8,073	8,738	10,699	5,105	6,700
Chemically treated	20	12	8	.....	.....
Tin and terneplate:					
Hot dipped	836	1,237	1,696	1,205	1,550
Electrolytic	1,098	1,938	548	86	100
Hot-rolled sheets	183,306	307,067	363,015	153,156	210,000
Cold-rolled sheets	457,623	534,642	758,649	389,990	520,000
Galvanized sheets:					
Hot-dipped	48,670	70,939	39,696	21,202	28,000
Electrolytic			26,048	13,132	17,400
Coated sheets—all other			2,423	1,435	1,900
Electrical sheets and strip	5,165	3,316	26,240	2,200	2,900
Enameling sheets	106,256	147,767	187,482	86,798	115,000
Strip:					
Hot rolled	27,392	32,045	28,790	12,819	17,000
Cold rolled	56,343	63,288	98,888	49,199	65,000
All other	.....	.....	3	.....	.....
Total steel products	977,696	1,293,023	1,682,618	822,326	1,079,540

* IRON AGE estimate.
† Includes cooking stoves and ranges, refrigerators, washing machines and ironers, and other household appliances.

Continued on Page 278

FUEL OIL

Wholesale Price of Pennsylvania Fuel Oil

Source: Bureau of Labor Statistics

	Price, per Gal.
1935 monthly average	$0.040
1936 monthly average	0.045
1937 monthly average	0.044
1938 monthly average	0.040
1939 monthly average	0.042
1940 monthly average	0.040
1941 monthly average	0.051
1942 monthly average	0.057
1943 monthly average	0.064
1944 monthly average	0.066
1945 monthly average	0.064
1946 monthly average	0.060
1947 monthly average	0.081
1948: January	0.110
February	0.110
March	0.110
April	0.110
May	0.110
June	0.110
July	0.110
August	0.110
September	0.110
October	0.110
November	0.110
December	0.110
1948 monthly average	0.110
1949: January	0.110
February	0.108
March	0.103
April	0.098
May	0.088
June	0.088
July	0.088
August	0.083
September	0.084
1949 monthly average*	0.092

* IRON AGE estimate.

IDEAS WANTED

How would you improve this issue—to make it more readable — more useful — more accurate? The editors will appreciate suggestions.

STEEL USED IN A REFRIGERATOR

Source: American Iron and Steel Institute

	Weight, lb.
Outer shell:	
Cold-rolled sheet	63.57
Cold-rolled strip	4.16
Liner:	
Enameling sheet	30.10
Compressor:	
Cold-rolled sheet	13.19
Electrical sheet	7.46
Provision compartment door:	
Cold-rolled strip	2.30
Cold-rolled sheet	15.75
Evaporator:	
Stainless sheet	10.03
Machine compartment door:	
Cold-rolled sheet	9.80
Condenser:	
Cold-rolled strip (fins)	7.26
Steel tubing	1.50
Condensing unit base assembly:	
Hot-rolled strip	3.91
Vegetable pan:	
Enameling sheet	1.23
Door trim:	
Stainless strip	1.11
Base trim:	
Stainless steel	0.29
Total	171.66

2 Ways TO GREATER ECONOMIES

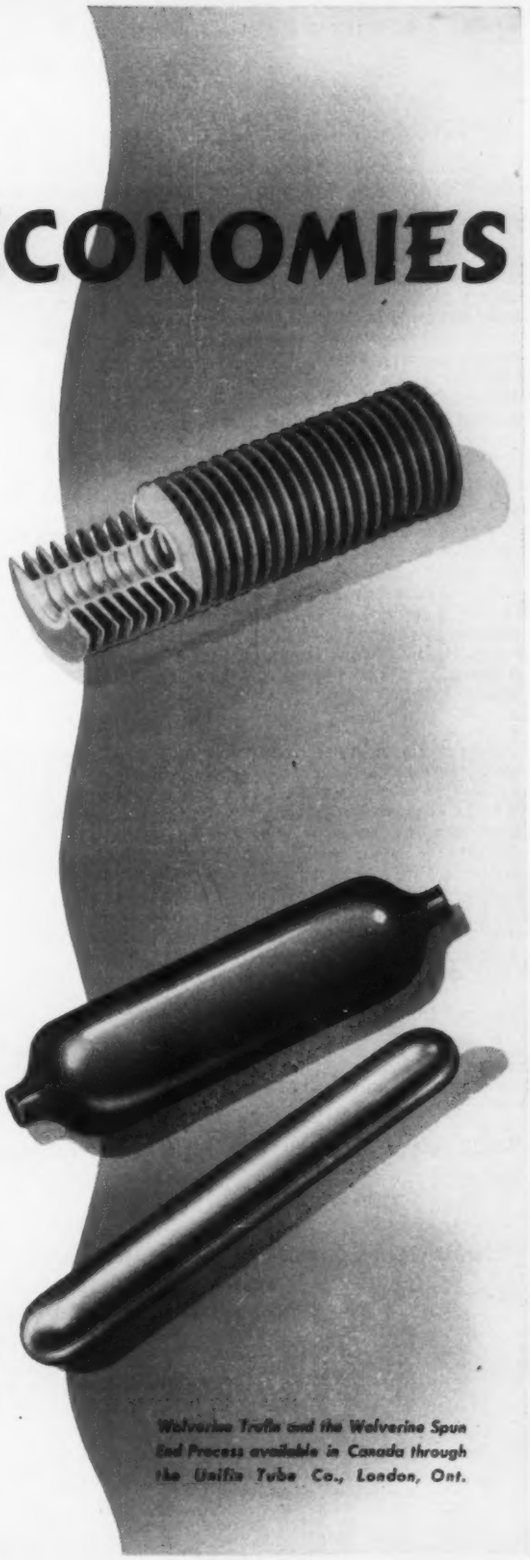
use Wolverine *Trufin for heat transfer

Worthwhile savings are effected in most installations. Unit costs are decreased because less tubing is required for each installation; consequently, the use of much other material is eliminated. Labor, too, is reduced. Note in the illustration how the fins are formed from the tube itself to give you a finned tube that will withstand vibration and extreme temperature changes.

use Wolverine Spun End Process for tubular parts

Plain tubing is often employed in the fabrication of tubular parts because it has been found so much more economical than other methods of forming. This is particularly true in cases where the ends are formed in special shapes—with or without openings. For this fabrication investigate the Wolverine Spun End Process.

*REG. U. S. PAT. OFFICE



Wolverine Trufin and the Wolverine Spun End Process available in Canada through the Unifin Tube Co., London, Ont.

WOLVERINE TUBE DIVISION
Calumet & Hecla Consolidated Copper Company
1441 CENTRAL AVE. DETROIT 9, MICHIGAN
MANUFACTURERS OF SEAMLESS, NON-FERROUS TUBING

Plants at Detroit and Decatur, Ala.

Stocks Available at all Wolverine Mill Depots
DETROIT, MICH. • DECATUR, ALA. • HOUSTON, TEXAS
LOS ANGELES, CALIF. • LONG ISLAND CITY, N.Y.

Sales Offices in principal cities

SUMMARY OF MUNICIPAL AIR POLLUTION REGULATIONS

Highlights of smoke, dust and air pollution regulations of several major industrial centers covering terms of measuring smoke, dust and other forms of air pollution, and penalties, as compiled by THE IRON AGE.

CHICAGO

It is considered unlawful to allow the emission of dense smoke except for periods aggregating 6 min in any one hour at the time when a firebox is being cleaned out or a new fire is being built. During such a 6-min period, emission of smoke of a shade or density greater than No. 3 of the Ringelmann Chart is also prohibited. The law further provides that no person shall allow the escape of ash dust, soot, cinders, acid or other fumes, dirt, or noxious gases from a smoke stack or chimney in quantities that would constitute an annoyance or injury to the public, or damage any business or property. Penalties for violations range from not less than $5.00 to not more than $200.00 for each offense. It is interesting to note that it is regarded a separate and distinct offense each day the violation is continued. Dense smoke, as defined in the Chicago ordinance, is smoke of 60 pct or greater density, or smoke that cannot be seen through clearly as it leaves the top of the chimney.

DETROIT

Air pollution ordinances forbid emission of smoke from any source whatever of a density equal to or greater than No. 2 on the Ringelmann Chart for periods aggregating 4 min in any 30 min. Smoke equal to No. 3 of the chart is permissible for periods aggregating 3 min in any 15 min when building a new fire or when breakdown of equipment occurs which makes dense smoke unavoidable. The law also prohibits permitting the escape of soot, cinders, noxious acids, fumes, gases, fly ash or industrial dust in quantities as to endanger public health, create a nuisance, or tend to damage property or business. Maintenance and operation of approved equipment for reducing the quantity of gas, air-borne solids or fumes emitted into the open air are required, so that the quantity of gases or air-borne solids does not exceed 0.30 grains per cu ft of the carrying medium at a temperature of 500°F. Persons convicted of violating the ordinance are subject to a fine of not more than $100.00 or to imprisonment for not more than 30 days, or to both a fine and imprisonment. Each day that the violation is continued constitutes a separate offense.

PITTSBURGH

Smoke equal to or greater in density than No. 2 on the Ringelmann Chart is considered dense and declared a nuisance under the Pittsburgh ordinance, and its emission is prohibited except for an aggregate period of 9 min or less in any one hour when a fire box is being cleaned out or a new fire is being built. Smoke of a density greater than No. 2 is permitted under these conditions for periods aggregating 6 min or less in any 1 hr. After a locomotive is in service or ready for service, dense smoke is permitted for a total of 1 min in any 1 hr. Emission of such quantities of soot, cinders, noxious acids, fumes or gases as are sufficient to cause injury, detriment or nuisance to any person, business or property are likewise prohibited, and the law requires operation and maintenance of a recognized device for reducing the quantity of fly ash emitted into the open air so that the air-borne solids do not exceed 0.75 grains per cu ft of flue gas at a stack temperature of 500°F, of which amount 0.2 of a grain per cu ft must be of such size as to be retained on a 325 mesh sieve. Violation of any provision of the ordinance is subject to a fine of not less than $25.00 nor more than $100.00 for each violation. Each day the violation is continued is considered a separate offense as is each stack of an establishment.

LOS ANGELES

Plants may not discharge any air contaminant as dark or darker than No. 2 on the Ringelmann Chart into the atmosphere for a period aggregating more than 3 min in any 1 hr from any single source of emission. The law prohibits discharge of quantities of air contaminants or other material which causes injury, detriment, nuisance or annoyance to the public, business or property. This includes particulate matter from any source in excess of 0.4 grains per cu ft, sulfur compounds greater than 0.2 pct by volume at the point of discharge, dust or fumes, and solid products of combustion exceeding 1.4 grains per cu ft of gas calculated to 12 pct of carbon dioxide.

HOUSEHOLD REFRIGERATORS

Monthly Index of Domestic Electric Household Refrigerator Sales Billed

Average Month 1936 = 100

Source: National Electrical Manufacturers Assn.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Avg.
1934	18.8	43.9	80.9	142.0	148.2	101.2	64.4	43.2	21.3	16.1	15.6	38.9	61.2
1935	56.2	70.8	124.5	155.7	142.8	93.5	89.8	64.1	31.2	25.3	27.3	44.0	77.1
1936	69.4	105.8	156.7	175.0	189.4	136.6	118.0	61.6	46.1	25.5	45.0	70.9	100.0
1937	100.8	144.5	207.4	197.2	196.1	157.6	113.5	70.9	48.7	39.9	52.8	64.5	116.2
1938	61.0	84.3	101.3	123.7	104.4	61.0	51.7	54.1	36.2	20.0	18.7	27.8	62.0
1939	87.9	117.4	142.8	147.7	155.5	152.6	93.2	53.8	41.5	35.2	31.4	52.6	92.6
1940	133.5	159.7	169.7	208.7	236.9	202.0	152.7	126.9	69.2	54.3	49.1	71.0	136.1
1941	231.7	220.8	260.5	297.3	267.3	233.1	211.4	168.5	102.4	82.8	57.3	62.6	183.0
Insufficient data available for computing indexes for the years 1942-1945 inclusive.													
1946	Average first 6 months—71.2						118.1	121.6	128.1	146.7	134.3	136.0	101.0
1947	131.7	113.4	154.3	167.6	176.4	183.0	173.3	133.1	179.7	197.1	181.9	211.2	166.9
1948	181.8	188.2	226.0	219.0	210.5	246.5	231.9	185.8	225.7	249.7	245.4	216.7	218.9
1949	298.2	193.2	155.7	119.0	122.0	137.0	197.0	271.0	450.0	n.a.	n.a.	n.a.	*202.0

*Iron Age estimate.

STEEL USED IN A TYPICAL CAR

Estimates from Various Sources

Source		Sheet and Strip	Total Steel
AMA	Materials used in a typical car 1942	....	3385 lb
AISI	Pounds of steel used in a typical car 1942	....	3544
THE IRON AGE	Steel required for a car in the lower price group	1740	2410
Confidential	Estimated steel consumption for a typical car, including scrap, 1941	....	2650
AISI	Steel delivered to the automobile industry 1946-47-48 per vehicle produced. (Inventory changes would affect this figure)	2454*	3392*

* These figures undoubtedly include steel used for non-automotive applications.

STEEL REQUIREMENTS FOR AUTOMOBILE PARTS

Estimates by THE IRON AGE, based on reports of steel sizes ordered from the mill. Passenger cars differ greatly in size, weight and design. It is not practical to compute averages on the basis of the data given below. The tables, do, however, give an indication of the specific steel requirements of auto plants for certain applications. The tables were compiled from data furnished by several auto producers and their steel suppliers. Some auto parts, oil pans and bumpers, for example, are made of more than one type of steel and the steel may be ordered double width.

	Typical Width, Inches	Gross Weight, lb
Cold-rolled sheet and strip—19 and 20 gage:		
Top	68–75	105–112
Hood top	43–72	71–77
Front fender	45–52	72–90
Rear fender	42	40
Quarter panel	45–59	43–60
Rear deck lid	39–47	22–24
Doors	35–50	18–28
Bumpers	15–24	22–80
Oil pan	.....	.....
Hot-rolled sheet and strip—up to 16 gage:		
Floor pan, front	61–81	41–83
Floor pan, intermediate	55	37
Floor pan, rear	62–81	41–45
Oil pan	23–31	10.3–14.4
Frame	8–12¾	300
Wheel rims	7–9½	.....
Bumpers	6½–13	.....

	Typical Diam. Ordered, In.
Plain carbon hot-rolled bars	
Rear axle	1½
Spark plugs	⅞–1 15/16
Camshafts	1⅞
Connecting rods	1¾
Motor support arm	1¼
Crankshaft sprocket	2 23/32

Other auto parts for which carbon hot-rolled bars are usually specified include: Miscellaneous formed and forged parts, steering mechanism parts, engine and clutch parts, etc.

Plain carbon cold-finished bars:	
Transmission shafts	1⅝–1 43/64
Transmission gear shift lever	1.0
Differential pinion shaft	0.766
Speedometer gear	2.0
Starter shaft	0.634
Spring shackle pins	0.489–½
Gear shifter shaft	¾
Piston pins	⅞

Other applications include: Heater parts, brake cylinder parts, front brake flange bolt, miscellaneous clutch parts, oil pump bracket bolt, door handle insert, door handle shaft, rear spring pin, reverse idler shaft, oil pump drive shaft, stud for rear shock absorber, distributor shaft, window regulator pin and cam thrust plunger.

	Typical Diam. Ordered, In.
Hot-rolled alloy bars	
Axle shafts	1 9/16–1¾
Steering knuckles	1¼–2⅛
Steering arms	1¼–1 13/16
Transmission gears	1 13/16–1¾
Ring gears	3–4
Differential gears	1⅝–2
Springs, coil	0.592–0.750
Springs, leaf	0.231–0.313x1¾
Universal joint	1¾–1⅞
Propeller shafts	1⅞
King pins	1–5 5/64
Rear axle drive pinion	1⅝
Cold-finished alloy bars:	
Transmission shafts	1⅝
Piston pins	⅞
Oil pump drive shaft	½
Differential pinion	2⅜

RINGELMANN SMOKE CHART

The Ringelmann smoke chart, which is often used as a standard for measuring smoke density, contains a series of graduated shades of gray, against which the smoke is compared.

Copies of the Ringelmann smoke chart are available from the U. S. Bureau of Mines as Information Circular No. 6888.

THE IRON AGE

METAL INDUSTRY FACTS ISSUE — SECTION 8

ORE

COKE & COAL

PIG IRON

SCRAP

REFRACTORIES

PRODUCTION

STOCKS & RESERVES

EXPORTS & IMPORTS

PRODUCTION CAPACITIES

PRICES

SPOTLIGHTING 1949

Important Events Briefly Reviewed

Jan. 1—Cleveland Cliffs Iron Co. sells iron ore to several consumers at a base price of $7.20 a gross ton delivered lower lake ports, an increase of 86½¢ a ton above 1948 ore prices. 50 pct ferrosilicon advanced to 11.30¢ per lb of contained Si. Ferrosilicon, 65 pct, advanced 1¢ per lb of Si; 75 pct advanced ½¢; and briquets are advanced 0.4¢ per lb of alloy.

Jan. 18—Total ore reserves of the Hollinger-Hanna Quebec-Laborador field expected to be well above the proven 325 million tons in the small area staked out for exploration. Observers hazard an estimate of a billion tons for the district.

Feb. 2—Imports of German scrap to the U. S. in December reported at 105,524 tons, an increase of 25 pct over the previous month. Total imports of German scrap to the end of the year were only 353,766 tons.

Feb. 2—Announce plans for a 103 mile continuous belt conveyor line to move ore and coal between Lorain, Ohio, on Lake Erie and East Liverpool, Ohio, on the Ohio River. Riverlake Belt Conveyor Lines, Inc, has been formed to construct and operate the project estimated to cost $210 million.

Feb. 8—Study possibility of reducing manganese content in standard steel specifications in the event of an emergency is under way by the American Iron & Steel Institute.

Feb. 22—Over 20 million tons of iron ore assaying from 68 to 70 pct iron has been proved in Liberia. Mineral rights to 3 million acres bought by Liberia Mining Co., Ltd.

Mar. 1—The Japanese Board of Trade takes bids on 400,000 tons of heavy coking coal.

Mar. 8—The possibility of a cut-off in shipments of Russian manganese ore to the U. S. is not alarming. Strategic stockpile supplies are viewed as adequate to supply us for a period of about five years, with imports from South Africa and India increasing, as well as the availability of Gold Coast and Moroccan production. U. S. reserves could also be brought into production with subsidies as they were in the last war.

Mar. 10—Production of pellets from magnetic taconite concentrates scheduled to start at Reserve Mining Co., Ashland, Ky.

Mar. 15—Strong opposition looms on the controversial 130 mile belt conveyor system from Lake Erie to the Ohio River. Congress authorizes use of Canadian ore vessels to move Lake Superior ore during the 1949 season. Head of Coal Exporters Assn. urges shipment of U. S. metallurgical coal to Marshall Plan nations to hasten their industrial recovery.

Mar. 22—U. S. and Canadian blast furnaces consumed record tonnages of Lake Superior ores in January and February. Cumulative consumption on Mar. 1 was 14,582, 896 gross tons, more than the total in the same period of 1948.

Mar. 24—Republic Steel Corp. buys stock interest in Liberia Mining Co., Ltd.

Mar. 29—Pig iron market in the East has changed to a buyers' market in the space of a few weeks. Producers who have been out of the eastern market for a long time are offering iron again.

Apr. 5—Commerce Dept. scrap mission to Japan recommended that steps be taken to ship a portion of the 7 million ton Japanese scrap supply to the U. S. Following a long period of low activity in the scrap market, the scrap composite price has dropped to $23.58 a gross ton, down $19.42 from the price at the beginning of the year.

Apr. 7—Hanna Furnace Corp. develops a continuous fusion process for iron ore of any degree of fineness for the Great Lakes Steel Corp. The product is suitable for openhearths and as feed ore.

Apr. 19—Secretary of Commerce asks the Scrap Drive Committee to wind up its affairs by May 15 because of the improved supply.

May 1—Led by the southern producers of pig iron who announced a $4 a ton reduction, merchant furnaces begin to readjust prices to make them more competitive.

May 24—Voluntary allocations program for pig iron suspended.

July 11—The Great Lakes ore fleet had carried nearly 2.5 million tons more ore than in the corresponding period of 1948. Estimate 85 million tons for the season.

July 26—Armour Research Foundation describes synthetic substitute for palm oil.

Aug. 2—Stainless steel conveyor belt for coal mining found successful at the Johnstown Coal & Coke Co. Crichton No. 4 mine in Nicholas County, W. Va.

Aug. 9—U. S. Steel will build five new sintering plants to permit use of lower grade ores.

Aug. 22—For the first time since March, Russia shipped manganese into the U. S. in June. Worth $100,000, these tonnages were much lower than March shipments worth $600,000.

Sept. 1—U. S. steel companies show interest in Quebec-Labrador ore deposit. Republic, Armco, Inland and Wheeling Steel visit district with Hollinger-Hanna officials. Armco and Wheeling, with Oglebay Norton, are running 35,000 tons of taconite ore through a pelletizing installation. Republic Steel Corp. will cross-cut from the old shaft at Lyon Mountain Chateaugay mine near Malone, N. Y., in order to get to 25 million tons of low phos ore.

Oct. 11—Erie Mining Co., managed by Pickands, Mather & Co., filed an application with the Minnesota Dept. of Conservation to obtain a water supply for proposed taconite beneficiation plants with capacity for 10 million tons of concentrates production a year.

Nov. 28—Five U. S. Steel companies, Republic, Armco, National, Wheeling and Youngstown Sheet & Tube take an option to participate in the development of Hollinger-Hanna Quebec-Labrador ore.

Quick Guide to section No. 8

A complete cross-referenced index is on p. 3.

Metal Industry Facts

Ore
Coke & coal
Pig iron
Scrap
Refractories

Lake Superior Iron Ore Shipments (gross tons)

Source: Lake Superior Iron Ore Assn.

1949	69,556,269
1948	82,655,757
1947	77,210,278
1946	58,975,000
1945	75,207,000
1944	81,039,000
1943	85,116,000
1942	92,070,000
1941	79,941,000
1940	63,308,000
1939	44,984,000
1938	19,353,000
1937	61,973,000
1936	44,746,000
1935	28,214,000
1934	21,841,000
1933	21,455,000
1932	3,553,000
1931	23,281,000

U. S. EXPORTS OF PIG IRON (short tons)

Source: Dept. of Commerce and AISI

	1949*	1948	1947	1946	1945	1944	1943	1942	1941	1940
Canada	19,107	6,520	9,524	11,789	6,106	8,984	7,673	1,691	5,117	30,496
Belgium & Luxembourg	.....	.....	29,262	.....	7,790	.....	.....	.....	.....	3,537
Sweden	.....	.....	.....	24,082	22,066	.....	.....	.....	.....	11,883
Italy	.....	.....	.....	16,856	10,643	.....	.....	.....	.....	.....
France	.....	.....	.....	14,000	11,000	.....	.....	.....	.....	.....
China	.....	.....	.....	12,155	.....	.....	.....	.....	.....	8,290
Argentina	.....	.....	125	4,772	5,659	431	.....	336	.....	.....
United Kingdom	46,990	.....	.....	.....	1,521	132,001	121,534	105,495	555,339	515,061
Uruguay	.....	.....	.....	3,366	3,078	1,202	2,557	.....	195	.....
Russia	.....	.....	.....	.....	.....	4,036	3,729	430	.....	.....
Colombia	75	.....	.....	.....	.....	2,887	148	.....	441	.....
Chile	861	.....	.....	.....	.....	2,331	1,229	578	2,119	.....
Other Countries	3,282	512	1,290	12,044	23,180	9,864	7,685	3,125	15,322	51,089
Total	70,315*	7,032	40,201	99,064	94,048	161,536	144,555	111,655	578,533	629,336

* Nine months.

PIG IRON PRODUCTION

Includes ferroalloys made in blast furnaces, but excludes charcoal iron; U. S. Production only (thousands of net tons)

Source: 1901 to 1942, THE IRON AGE; October 1942 to 1949, AISI

	Jan.	Feb.	Mar.	April	May	June	First Half	July	Aug.	Sept.	Oct.	Nov.	Dec.	Second Half	Year
1901	1301	1270	1433	1408	1500	1476	8,388	1523	1496	1456	1548	1526	1418	8,967	17,355
1910	2922	2685	2932	2782	2677	2537	16,535	2407	2360	2303	2344	2139	1991	13,544	30,079
1920	3377	3337	3781	3068	3344	3409	20,316	3435	3525	3504	3688	3287	3029	20,468	40,784
1921	2705	2169	1788	1336	1368	1193	10,559	969	1069	1104	1396	1585	1847	7,970	18,529
1922	1842	1826	2280	2321	2583	2644	13,496	2694	2034	2278	2956	3191	3457	16,610	30,106
1923	3617	3353	3947	3976	4332	4117	23,342	4119	3864	3501	3527	3241	3272	21,524	44,866
1924	3382	3441	3883	3622	2929	2269	19,526	1999	2114	2299	2774	2811	3318	15,315	34,841
1925	3774	3600	3992	3650	3283	2995	21,294	2984	3030	3052	3386	3386	3640	19,478	40,772
1926	3714	3274	3855	3864	3900	3623	22,230	3610	3586	3512	3734	3626	3461	21,529	43,759
1927	3477	3294	3901	3832	3798	3461	21,763	3305	3300	3108	3118	2966	3020	18,817	40,580
1928	3214	3248	3585	3567	3678	3452	20,744	3441	3514	3429	3779	3698	3774	21,635	42,379
1929	3855	3591	4160	4102	4366	4183	24,237	4239	4218	3918	4019	3563	3177	23,133	47,360
1930	3166	3180	3636	3564	3620	3286	20,452	2958	2827	2550	2425	2092	1866	14,716	35,168
1931	1920	1912	2276	2261	2233	1836	12,438	1639	1435	1309	1314	1235	1098	8,030	20,468
1932	1089	1080	1084	954	877	704	5,788	640	582	663	721	707	612	3,925	9,713
1933	637	621	607	699	993	1417	4,974	2007	2053	1705	1519	1215	1323	9,822	14,796
1934	1361	1416	1813	1934	2288	2162	10,974	1372	1181	1006	1065	1072	1151	6,847	17,821
1935	1654	1802	1983	1863	1934	1739	10,975	1702	1972	1990	2215	2315	2360	12,554	23,529
1936	2269	2042	2285	2693	2966	2896	15,151	2905	3037	3058	3351	3301	3489	19,141	34,292
1937	3597	3359	3875	3799	3961	3481	22,072	3919	4039	3819	3239	2248	1669	18,933	41,005
1938	1601	1454	1627	1541	1406	1189	8,818	1346	1673	1882	2298	2543	2476	12,218	21,036
1939	2436	2307	2662	2303	1924	2373	14,025	2839	2979	3224	4063	4167	4220	21,292	35,317
1940	4032	3311	3270	3137	3514	3819	21,083	4054	4238	4177	4446	4403	4548	25,866	46,949
1941	4664	4198	4704	4334	4600	4553	27,053	4771	4791	4717	4856	4703	5012	28,850	55,903
1942	4971	4500	5055	4896	5073	4935	29,430	5051	5009	4937	5237	4966	5201	30,552	59,982
1943	5137	4766	5314	5035	5178	4836	30,343	5023	5316	5226	5324	5096	5213	31,434	61,777
1944	5283	5091	5442	5251	5351	5064	31,482	5157	5210	4988	5200	4904	4998	30,457	61,939
1945	4945	4583	5228	4786	5016	4605	29,142	4801	4249	4227	3388	4026	4323	25,025	54,167
1946	2645	1148	4424	3614	2275	3682	17,807	4705	4898	4687	4815	4435	3992	27,572	45,379
1947	5071	4550	5123	4830	5081	4810	29,480	4585	4917	4801	5228	5015	5177	29,723	59,209
1948	5195	4838	5019	3840	5077	4990	28,961	4899	5254	5207	5520	5399	5955	31,888	60,849
1949	5725	5223	5820	5531	5517	4819	32,842	4173	4477	4350	612	2721	5290*	21,623*	54,265*

*Preliminary figure, subject to revision.

Blast Furnaces

Number of furnaces for producing pig iron and ferroalloys, as of Jan. 1, 1949.

Source: American Iron & Steel Institute

Massachusetts	1	Texas	2
New York	16	Ohio	49
Pennsylvania	76	Indiana	22
Maryland	8	Illinois	22
Virginia	1	Michigan	6
West Virginia	4	Minnesota	3
Kentucky	3	Colorado	4
Tennessee	3	Utah	5
Alabama	20	California	1
		Total	246

Capacity on tonnage basis, as of Jan. 1, 1949 = 69,435,130 net tons.

Annual Blast Furnace Capacity*, Net Tons

Source: American Iron & Steel Institute

	Pig Iron	Ferro-alloys	Charcoal Iron	Total
1938	55,618,752	1,060,416	103,040	56,782,208
1939	55,162,374	1,060,416	103,040	56,325,830
1940	54,635,740	992,320	95,580	55,723,640
1941	56,522,370	980,660	106,560	57,609,590
1942	59,211,850	1,075,570	106,560	60,393,980
1943	62,859,330	967,000	107,200	63,933,530
1944	66,344,780	990,300	56,190	67,391,270
1945	66,256,810	992,600	64,480	67,313,890
1946	66,311,410	996,700	32,480	67,340,590
1947	64,674,020	1,002,700	32,480	65,709,200
1948	68,301,610	1,097,000	40,320	67,438,930
1949	69,435,130	1,066,400	40,320	70,541,850

* Capacities are for year beginning Jan. 1. Capacities of furnaces long idle not included.

Malleable Pig Iron at Mahoning or Shenango Valley Furnaces

(per gross ton)

Source: THE IRON AGE

	1929	1934	1936	1937	1938	1939
Jan.	$18.00	$17.50	$19.50	$21.00	$24.00	$21.00
Feb.	18.00	17.50	19.50	21.25	24.00	21.00
March	18.25	17.50	19.50	23.60	24.00	21.00
April	18.50	17.75	19.50	24.00	24.00	21.00
May	19.00	18.50	19.50	24.00	24.00	21.00
June	19.00	18.50	19.50	24.00	23.00	21.00
July	19.00	18.50	19.50	24.00	20.00	21.00
Aug.	19.00	18.50	19.50	24.00	20.00	21.00
Sept.	19.00	18.50	19.50	24.00	20.25	22.00
Oct.	19.00	18.50	19.50	24.00	21.00	23.00
Nov.	19.00	18.50	19.75	24.00	21.00	23.00
Dec.	19.00	18.50	20.50	24.00	21.00	23.00
Average	18.73	18.19	19.60	23.49	22.20	21.59

	1940*	1945*	1946	1947	1948	1949
Jan.	$23.00	$24.00	$25.75	$30.50	$39.50	$46.50
Feb.	23.00	24.50	25.75	30.50	39.50	46.50
March	23.00	25.00	26.13	33.50	39.50	46.50
April	23.00	25.00	26.50	33.50	39.50	46.50
May	23.00	25.00	26.50	33.50	39.50	46.50
June	23.00	25.00	26.50	33.50	39.50	46.50
July	23.00	25.00	28.50	34.70	42.50	46.50
Aug.	23.00	25.00	28.50	36.50	43.50	46.50
Sept.	23.00	25.00	28.50	36.50	43.50	46.50
Oct.	23.00	25.30	28.50	36.50	46.12	46.50
Nov.	23.00	25.75	28.50	36.50	46.50	46.50
Dec.	23.50	25.75	30.10	36.70	46.50	46.50
Average	23.04	25.02	27.48	34.36	42.13	46.50

* Price unchanged at $24.00 from 1941 through 1944

Material Used by Blast Furnaces in Production of Pig Iron in 1948, Net Tons

Source: American Iron & Steel Institute

Iron Ore	106,127,565
Scrap*	2,096,598
Mill Cinder, Scale, etc.	7,535,256
Total	115,759,419

* Scrap used less scrap produced.

Composite Pig Iron Price

Average of THE IRON AGE quotations on basic pig iron at Valley furnaces and foundry iron at Chicago, Birmingham, Buffalo, Valley and Philadelphia, in gross tons.

	1928	1929	1930	1931	1932	1933
Jan.	$17.63	$18.43	$18.19	$15.90	$14.68	$13.56
Feb.	17.73	18.38	18.02	15.80	14.51	13.56
March	17.73	18.36	17.75	15.71	14.45	13.56
April	17.67	18.52	17.73	15.79	14.35	13.76
May	17.45	18.70	17.60	15.76	14.12	14.48
June	17.23	18.65	17.48	15.62	14.01	15.01
July	17.10	18.48	17.16	15.56	13.76	15.50
Aug.	17.11	18.39	16.90	15.51	13.69	16.09
Sept.	17.54	18.27	16.70	15.44	13.64	16.71
Oct.	17.94	18.33	16.31	15.21	13.63	16.61
Nov.	18.46	18.36	16.21	14.97	13.59	16.61
Dec.	18.51	18.24	15.95	14.86	13.56	16.90
Average	17.68	18.43	17.17	15.51	14.00	15.20

	1934	1936	1937	1938	1939	1940
Jan.	$16.90	$18.84	$20.25	$23.25	$20.61	$22.61
Feb.	16.90	18.84	20.50	23.25	20.61	22.61
March	16.90	18.84	22.85	23.25	20.61	22.61
April	17.07	18.84	23.25	23.25	20.61	22.61
May	17.90	18.84	23.25	23.25	20.61	22.61
June	17.90	18.84	23.25	22.98	20.61	22.61
July	17.90	18.84	23.25	19.61	20.61	22.61
Aug.	17.90	18.73	23.25	19.61	20.61	22.61
Sept.	17.90	18.73	23.25	19.82	21.61	22.61
Oct.	17.90	18.73	23.25	20.57	22.61	22.61
Nov.	17.90	18.98	23.25	20.61	22.61	22.61
Dec.	17.90	19.73	23.25	20.61	22.61	22.95
Average	17.58	18.90	22.74	21.67	21.19	22.64

	1941*	1945*	1946	1947	1948	1949
Jan.	$23.45	$23.61	$25.37	$30.14	$39.83	$46.79
Feb.	23.45	24.11	25.37	30.15	40.27	46.74
March	23.53	24.61	25.75	32.92	40.32	46.74
April	23.61	24.61	26.12	33.15	40.11	46.64
May	23.61	24.61	26.45	33.15	40.33	45.97
June	23.61	24.61	28.13	33.15	40.51	45.91
July	23.61	24.61	28.13	34.52	42.23	45.91
Aug.	23.61	24.61	28.13	36.84	44.34	45.91
Sept.	23.61	24.61	28.13	36.95	44.96	45.90
Oct.	23.61	24.91	28.13	36.95	46.63	45.88
Nov.	23.61	25.37	28.13	37.04	46.84	45.88
Dec.	23.61	25.37	29.64	37.24	46.91	45.88
Average	23.58	24.61	27.29	34.35	42.94	46.18

* Price unchanged at $23.61 from 1942 through 1944.

No. 2 Foundry Pig Iron at Mahoning or Shenango Valley Furnaces

Source: THE IRON AGE

(per gross ton)

	1929	1934	1936	1937	1938	1939
Jan.	$17.50	$17.50	$19.50	$21.00	$24.00	$21.00
Feb.	17.50	17.50	19.50	21.25	24.00	21.00
March	17.75	17.50	19.50	23.60	24.00	21.00
April	18.00	17.75	19.50	24.00	24.00	21.00
May	18.50	18.50	19.50	24.00	24.00	21.00
June	18.50	18.50	19.50	24.00	23.20	21.00
July	18.50	18.50	19.50	24.00	20.00	21.00
Aug.	18.50	18.50	19.50	24.00	20.00	21.00
Sept.	18.50	18.50	19.50	24.00	20.25	22.00
Oct.	18.50	18.50	19.50	24.00	21.00	23.00
Nov.	18.50	18.50	19.75	24.00	21.00	23.00
Dec.	18.50	18.50	20.25	24.00	21.00	23.00
Average	18.23	18.19	19.60	23.49	22.20	21.59

	1940*	1945*	1946	1947	1948	1949
Jan.	$23.00	$24.00	$25.75	$30.50	$39.37	$46.50
Feb.	23.00	24.50	25.75	30.50	39.50	46.50
March	23.00	25.00	26.13	33.50	39.50	46.50
April	23.00	25.00	26.50	33.50	39.50	46.50
May	23.00	25.00	26.50	33.50	39.50	46.50
June	23.00	25.00	26.50	33.50	39.50	46.50
July	23.00	25.00	28.50	34.70	42.50	46.50
Aug.	23.00	25.00	28.50	36.50	43.50	46.50
Sept.	23.00	25.00	28.50	36.50	43.50	46.50
Oct.	23.00	25.30	28.50	36.50	46.12	46.50
Nov.	23.00	25.75	28.50	36.50	46.50	46.50
Dec.	23.40	25.75	30.10	36.70	46.50	46.50
Average	23.03	25.02	27.64	34.36	42.12	46.50

* Price unchanged at $24.00 from 1941 through 1944.

No. 2 Foundry Pig Iron at Birmingham

Source: THE IRON AGE

(per gross ton†)

	1929	1936	1937	1938	1939	1940
Jan.	$16.50	$15.50	$17.38	$20.38	$17.38	$19.38
Feb.	16.50	15.50	17.68	20.38	17.38	19.38
March	16.00	15.50	19.93	20.38	17.38	19.38
April	15.40	15.50	20.38	20.38	17.38	19.38
May	15.00	15.50	20.38	20.38	17.38	19.38
June	15.00	15.50	20.38	19.58	17.38	19.38
July	14.63	15.50	20.38	18.38	17.38	19.38
Aug.	14.50	15.88	20.38	18.38	17.38	19.38
Sept.	14.50	15.88	20.38	18.63	18.38	19.38
Oct.	14.50	15.88	20.38	17.38	19.38	19.38
Nov.	14.50	16.13	20.38	17.38	19.38	19.38
Dec.	14.50	16.88	20.38	17.38	19.38	19.38
Average	15.13	15.76	19.87	18.58	17.96	19.38

	1941*	1945*	1946	1947	1948	1949
Jan.	$19.38	$20.38	$22.13	$26.88	$37.38	$43.38
Feb.	19.38	20.86	22.13	26.88	37.38	43.38
March	19.89	21.38	22.51	29.13	37.38	43.38
April	20.38	21.38	22.88	29.88	37.38	43.38
May	20.38	21.38	22.88	29.88	38.38	39.71
June	20.38	21.38	24.88	29.88	39.38	39.38
July	20.38	21.38	24.88	31.28	41.04	39.38
Aug.	20.38	21.38	24.88	34.13	43.38	39.38
Sept.	20.38	21.38	24.88	34.88	43.38	39.38
Oct.	20.38	21.68	24.88	34.88	43.38	39.38
Nov.	20.38	22.13	24.88	34.88	43.38	39.38
Dec.	20.38	22.13	26.88	34.60	43.38	39.38
Average	20.17	21.40	24.06	31.43	40.43	40.74

† Subject to 38¢ a ton deduction for 0.70 phosphorus and over.

* Price unchanged at $20.38 from 1942 through 1944.

Metal Industry Facts

Ore
Coke & coal
Pig iron
Scrap
Refractories

Charcoal Pig Iron at Chicago
(per gross ton)

Source: THE IRON AGE

	1929	1938	1939	1940	1941	1942
Jan.	$27.04	$30.24	$28.34	$30.34	$30.34	$31.34
Feb.	27.04	30.24	28.34	30.34	30.34	31.34
March	27.04	30.24	28.34	30.34	30.34	31.34
April	27.04	30.32	28.34	30.34	30.34	31.34
May	27.04	30.34	28.34	30.34	31.09	31.34
June	27.04	30.34	28.34	30.34	31.34	31.34
July	27.04	28.34	28.34	30.34	31.34	31.34
Aug.	27.04	28.34	28.34	30.34	31.34	31.34
Sept.	27.04	28.34	29.34	30.34	31.34	31.34
Oct.	27.04	28.34	30.34	30.34	31.34	31.34
Nov.	27.04	28.34	30.34	30.34	31.34	31.34
Dec.	27.04	28.34	30.34	30.34	31.34	31.34
Average	27.04	29.31	28.92	30.34	30.99	31.34

	1943*	1945*	1946	1947	1948	1949
Jan.	$31.34	$37.34	$42.34	$42.99	$61.21	$73.78
Feb.	31.34	37.34	42.34	42.99	62.46	73.78
March	31.34	41.09	42.34	45.24	62.46	73.78
April	31.34	42.34	42.34	45.99	62.46	73.78
May	31.34	42.34	42.34	45.99	63.27	73.78
June	31.34	42.34	42.34	45.99	65.55	69.35
July	31.34	42.34	42.34	47.01	67.55	68.24
Aug.	31.34	42.34	42.34	49.49	69.55	68.24
Sept.	37.34	42.34	42.34	49.49	69.55	68.50
Oct.	37.34	42.34	42.34	52.77	73.78	68.56
Nov.	37.34	42.34	42.34	56.04	73.78	68.56
Dec.	37.34	42.34	42.60	56.04	73.78	68.56
Average	33.34	41.40	42.36	48.34	67.11	70.74

* Price unchanged at $37.34 throughout 1944.

No. 2 Foundry Pig Iron at Granite City, Ill.
(per gross ton, at furnace†)

Source: THE IRON AGE

	1929	1934	1936	1937	1938	1939
Jan.	$20.75	$17.50	$19.50	$21.00	$24.00	$21.00
Feb.	20.75	17.50	19.50	21.25	24.00	21.00
March	20.75	17.50	19.50	23.60	24.00	21.00
April	20.75	17.75	19.50	24.00	24.00	21.00
May	20.75	18.50	19.50	24.00	24.00	21.00
June	20.75	18.50	19.50	24.00	23.00	21.00
July	20.75	18.50	19.50	24.00	20.00	21.00
Aug.	20.69	18.50	19.50	24.00	20.00	21.00
Sept.	20.50	18.50	19.50	24.00	20.25	22.00
Oct.	20.50	18.50	19.50	24.00	21.00	23.00
Nov.	20.50	18.50	19.75	24.00	21.00	23.00
Dec.	20.50	18.50	20.50	24.00	21.00	23.00
Average	20.66	18.19	19.60	23.49	22.20	21.59

	1940*	1945*	1946	1947	1948	1949
Jan.	$23.00	$24.00	$25.75	$30.50	$39.25	$48.40
Feb.	23.00	24.50	25.75	30.50	40.00	48.40
March	23.00	25.00	26.13	32.00	40.00	48.40
April	23.00	25.00	26.50	33.50	40.00	48.40
May	23.00	25.00	26.50	33.50	41.43	48.40
June	23.00	25.00	28.50	33.50	45.75	48.40
July	23.00	25.00	28.50	34.60	45.75	48.40
Aug.	23.00	25.00	28.50	36.63	47.34	48.40
Sept.	23.00	25.00	28.50	37.00	48.40	48.40
Oct.	23.00	25.30	28.50	37.00	48.40	48.40
Nov.	23.00	25.75	28.50	37.00	48.40	48.40
Dec.	23.50	25.75	29.70	37.00	48.40	48.40
Average	23.04	25.02	27.44	34.39	44.42	48.40

† Prior to September 1933, St. Louis prices are given.
* Price unchanged at $24.00 from 1941 through 1944.

No. 1 Heavy Melting Scrap at Pittsburgh
(per gross ton)

Source: THE IRON AGE

	1929	1937	1938	1939	1940	1941*
Jan.	$19.31	$19.50	$14.25	$15.72	$18.35	$22.13
Feb.	18.63	19.81	14.13	15.72	17.50	21.00
March	18.44	23.15	13.67	15.97	16.88	21.00
April	18.80	22.25	12.44	15.31	16.55	20.20
May	17.88	19.38	11.50	14.48	18.37	20.00
June	18.25	18.45	11.30	15.12	20.06	20.00
July	18.55	19.75	14.25	15.56	19.10	20.00
Aug.	19.00	21.85	15.45	16.15	18.56	20.00
Sept.	18.31	19.62	15.25	19.88	20.00	20.00
Oct.	17.30	16.62	15.00	23.05	21.45	20.00
Nov.	16.39	13.75	15.28	20.58	21.69	20.00
Dec.	15.45	13.75	15.75	18.58	22.28	20.00
Average	18.01	18.86	14.02	17.17	19.23	20.36

	1944*	1945	1946	1947	1948	1949
Jan.	$20.00	$20.00	$20.00	$32.25	$40.37	$41.25
Feb.	20.00	20.00	20.00	34.94	40.43	39.25
March	20.00	20.00	20.00	39.85	40.25	36.30
April	20.00	20.00	20.00	35.40	40.25	24.94
May	20.00	20.00	20.00	30.38	40.25	23.00
June	20.00	20.00	20.00	33.88	40.25	22.00
July	20.00	20.00	20.00	38.45	40.87	20.75
Aug.	19.95	20.00	20.00	40.00	42.75	21.94
Sept.	18.25	20.00	20.00	37.75	42.75	27.35
Oct.	16.10	20.00	20.00	40.75	42.75	29.44
Nov.	17.13	20.00	23.94	41.88	42.75	31.95
Dec.	19.94	20.00	29.00	40.00	42.75	30.75
Average	19.28	20.00	21.08	37.13	41.36	29.08

* Price unchanged at $20.00 throughout 1942 and 1943.

Fire Clay Brick

First quality, Pa.,* Ky., Mo., Ill., Md., Ohio

(Carloads, per 1000 brick)

f.o.b. plant

Source: THE IRON AGE

	1941†‡	1945‡	1946	1947	1948	1949
Jan.	$47.50	$51.30	$54.40	$65.00	$73.00	$80.00
Feb.	47.50	51.69	54.40	65.00	73.00	80.00
Mar.	47.50	52.85	54.40	65.00	73.00	80.00
Apr.	47.50	52.85	58.90	66.00	73.00	80.00
May	47.50	52.85	60.40	70.00	73.00	80.00
June	48.45	52.85	60.40	70.00	73.00	80.00
July	51.30	52.85	60.40	70.00	74.00	80.00
Aug.	51.30	52.85	60.40	70.00	80.00	80.00
Sept.	51.30	54.45	60.40	70.00	80.00	80.00
Oct.	51.30	54.44	64.08	70.00	80.00	80.00
Nov.	51.30	54.40	65.00	70.00	80.00	80.00
Dec.	51.30	54.40	65.00	72.00	80.00	80.00
Average	49.48	53.13	59.85	69.00	76.00	80.00

† Price unchanged at $47.50 throughout 1939 and 1940.
‡ Price unchanged at $51.30 from 1942 through 1944.
* Add $5.00 for Salina, Pa., after May, 1949.

SILICA BRICK

Standard grade — Mt. Union, Pa., Ensley, Ala.

(Carloads, per 1000 brick)

f.o.b. plant

Source: THE IRON AGE

	1939*	1941*†	1945†	1946	1947	1948	1949
January	$43.75	$47.50	$51.30	$54.40	$65.00	$73.00	$80.00
February	40.00	47.50	51.69	54.40	65.00	73.00	80.00
March	40.00	47.50	52.85	54.40	65.00	73.00	80.00
April	47.50	47.50	52.85	58.90	66.00	73.00	80.00
May	47.50	47.50	52.85	60.40	70.00	73.00	80.00
June	47.50	48.45	52.85	60.40	70.00	73.00	80.00
July	47.50	51.30	52.85	60.40	70.00	74.00	80.00
August	47.50	51.30	52.85	60.40	70.00	80.00	80.00
September	47.50	51.30	54.45	60.40	70.00	80.00	80.00
October	47.50	51.30	54.44	64.08	70.00	80.00	80.00
November	47.50	51.30	54.40	65.00	70.00	80.00	80.00
December	47.50	51.30	54.40	65.00	72.00	80.00	80.00
Average	45.94	49.48	53.15	59.85	69.00	76.00	80.00

* Price unchanged at $47.50 through 1940.
† Price unchanged at $51.30 from 1942 through 1944.

MANGANESE ORE, U. S. IMPORTS FOR CONSUMPTION

(Short Tons, Mn. content)

Source: U. S. Dept. of Commerce

	1941	1942	1943	1944	1945	1946	1947	1948	1949*
Belgian Congo	.....	1,546	9,075	7,544	.....	.....	1,608	1,371	3,191
Brazil	186,711	147,908	168,234	88,899	115,916	38,985	70,234	71,561	68,856
Chile	8,669	2,113	7,693	2,885	42,699	65,222	19,930	4,927	6,093
Cuba	129,696	73,098	101,789	223,392	140,325	77,469	26,893	15,931	19,624
Gold Coast	113,737	95,698	112,700	82,408	108,747	144,275	112,102	112,503	94,838
India	219,756	301,777	231,598	172,385	103,586	160,958	140,007	152,852	118,050
Mexico	515	16,270	28,662	35,610	22,240	18,570	22,805	23,894	12,125
Philippines, Republic of	30,797	.....	.....	.....	.....	.....	1,141	5,099	5,741
Union of South Africa	142,838	110,083	56,812	19,026	29,544	113,037	87,154	130,114	70,264
U.S.S.R.	16,929	9,200	2,341	.....	70,062	121,753	141,975	182,455	62,820
Total Imports†	824,956	788,399	729,305	633,197	633,859	740,277	624,431	702,211	464,972*

* Nine months. † Total import figures include small imports from minor producing countries not otherwise listed.

No. 1 Heavy Melting Scrap at Philadelphia

Source: THE IRON AGE

(per gross ton)

	1929	1937	1938	1939	1940	1941*
Jan.	$16.39	$17.37	$14.75	$15.25	$18.00	$20.50
Feb.	16.39	18.50	14.75	15.25	17.38	20.00
March	16.13	19.60	14.55	15.38	17.12	20.00
April	17.00	20.00	13.37	15.62	16.75	19.00
May	16.39	18.62	12.13	15.25	17.56	18.75
June	16.00	17.20	12.20	15.41	19.69	18.75
July	16.50	19.00	13.63	15.62	18.95	18.75
Aug.	16.50	19.75	14.35	18.25	19.56	18.75
Sept.	16.39	19.00	14.25	18.87	20.50	18.75
Oct.	15.70	16.38	14.75	22.35	20.70	18.75
Nov.	15.00	13.75	14.75	20.75	20.75	18.75
Dec.	14.50	14.25	15.12	18.92	20.85	18.75
Average	16.07	17.78	14.05	17.08	18.98	19.13

	1944*	1945	1946	1947	1948	1949
Jan.	$18.75	$18.75	$18.75	$31.00	$42.50	$42.75
Feb.	18.75	18.75	18.75	33.38	41.50	39.75
March	18.75	18.75	18.75	39.38	40.80	35.10
April	18.75	18.75	18.75	33.10	41.50	23.00
May	18.75	18.40	18.75	29.69	42.31	22.00
June	18.75	18.25	18.75	33.63	42.50	19.50
July	18.75	18.75	18.75	38.45	43.12	17.50
Aug.	18.60	18.75	18.75	38.50	45.00	18.31
Sept.	16.66	18.75	18.75	38.80	45.00	23.35
Oct.	14.60	18.75	18.75	40.25	45.00	24.25
Nov.	15.50	18.75	22.94	42.63	44.75	24.50
Dec.	18.50	18.75	28.00	41.10	44.50	24.70†
Average	17.01	18.68	19.87	36.50	43.20	26.23†

† Estimate.
* Price unchanged at $18.75 throughout 1942 and 1943.

No. 1 Machinery Cast Scrap at Chicago

(per gross ton‡)

Source: THE IRON AGE

	1929	1934	1936	1937	1938	1939
Jan.	$15.81	$9.50	$12.00	$15.87	$12.50	$12.56
Feb.	16.25	9.50	12.75	16.25	12.19	12.75
March	16.00	9.50	13.10	17.40	11.65	12.75
April	16.00	9.50	12.50	17.12	10.88	12.12
May	15.39	8.90	12.00	15.25	10.75	11.75
June	14.75	7.50	12.00	15.00	10.45	12.15
July	14.50	8.05	12.12	15.75	12.00	12.25
Aug.	14.50	8.00	13.37	16.55	13.35	12.25
Sept.	14.50	8.00	13.60	14.38	13.00	14.50
Oct.	14.50	8.00	14.00	13.18	12.25	16.87
Nov.	13.63	8.25	14.00	11.65	12.60	15.65
Dec.	13.50	9.65	14.75	12.12	12.50	14.50
Average	15.11	8.69	13.02	15.04	12.01	13.34

	1940	1941*	1946*	1947	1948	1949
Jan.	$14.00	$18.88	$20.00	$43.38	$68.00	$57.25
Feb.	13.75	19.25	20.00	44.56	65.25	46.00
March	13.56	20.75	20.00	46.00	68.50	41.20
April	14.81	‡22.33	20.00	42.70	73.12	29.63
May	16.31	21.40	20.00	38.00	72.50	27.90
June	17.31	20.00	20.00	41.81	69.90	28.69
July	16.75	20.00	20.00	46.00	71.50	30.75
Aug.	16.88	20.00	20.00	49.38	74.30	39.30
Sept.	17.13	20.00	22.50	49.50	71.25	42.25
Oct.	17.75	20.00	25.00	51.00	69.87	41.25
Nov.	18.00	20.00	32.28	52.75	72.20	43.88
Dec.	19.13	20.00	41.05	60.30	69.50	40.70†
Average	16.28	20.21	23.40	47.12	70.48	39.07†

† Estimate.
‡ Changed from net ton basis April 30, 1941.
* Price unchanged at $20.00 from 1942 through 1945. Ceiling price does not include delivery costs.

No. 1 Machinery Cast Scrap at Cincinnati

Source: THE IRON AGE

(per gross ton)

	1929	1934	1936	1937	1938	1939
Jan.	$17.14	$ 9.50	$11.37	$15.75	$11.25	$13.75
Feb.	17.24	9.50	11.75	16.12	10.87	13.75
March	17.19	10.00	12.40	17.30	11.05	14.38
April	17.19	10.00	12.19	17.37	10.62	13.56
May	17.19	9.45	11.50	14.44	10.25	12.00
June	17.19	9.00	11.20	14.00	10.10	12.13
July	17.19	9.00	11.19	14.87	11.75	12.25
Aug.	17.05	8.88	12.43	16.25	12.65	12.80
Sept.	16.98	8.75	13.60	14.25	12.31	15.38
Oct.	16.92	8.75	14.00	13.38	12.31	19.55
Nov.	16.57	8.88	14.00	11.85	13.15	18.88
Dec.	16.52	9.85	15.12	10.75	13.88	17.75
Average	17.03	9.30	12.56	14.69	11.68	14.68

	1940	1941*	1946*	1947	1948†	1949†
Jan.	$17.65	$22.75	$20.00	$34.00	$60.00	$60.00
Feb.	16.69	22.50	20.00	35.38	66.75	49.00
March	16.25	‡22.50	20.00	47.00	63.70	42.00
April	16.05	.....	20.00	45.60	63.50	32.00
May	16.88	.....	20.00	43.25	63.50	27.50
June	19.38	.....	20.00	44.88	63.50	28.30
July	18.65	.....	20.00	46.50	64.75	25.50
Aug.	18.75	.....	20.00	45.50	67.00	29.88
Sept.	20.12	‡22.50	22.50	44.50	67.00	36.50
Oct.	20.55	22.50	25.00	45.50	65.50	40.50
Nov.	21.00	22.50	26.25	50.38	65.50	41.00
Dec.	22.50	22.50	30.80	53.60	65.50	40.50**
Average	18.71	.....	22.05	44.67	64.68	37.56**

† Average of No. 1 cupola cast prices.
‡ In transition from open market quotations to OPA price maximums, this grade not quoted. However, in September, the maximum schedules were revised to include this grade.
* Price unchanged at $20.00 from 1942 through 1945. Ceiling price does not include delivery costs.
** Estimate.

Ferromanganese Shipments by U. S. Furnaces

(Short Tons)

Source: U. S. Bureau of Mines

1930	306,477	1940	503,291
1931	178,268	1941	619,395
1932	78,867	1942	659,219
1933	142,747	1943	722,658
1934	165,701	1944	715,059
1935	217,982	1945	610,376
1936	361,035	1946	493,808
1937	403,023	1947	614,647
1938	250,566	1948	647,617
1939	322,227	1949	600,000*

* Estimate by THE IRON AGE.

No. 1 Heavy Melting Scrap at Chicago

Source: THE IRON AGE

(per gross ton)

	1929	1937	1938	1939	1940	1941*
Jan.	$15.39	$17.81	$13.00	$13.87	$16.38	$20.00
Feb.	15.88	19.25	12.69	13.94	15.75	19.25
March	15.66	20.60	12.15	14.25	15.69	19.88
April	15.95	20.56	11.37	13.37	15.33	18.95
May	15.39	17.12	11.00	12.75	17.00	18.75
June	14.94	15.70	10.45	13.45	18.19	18.75
July	14.75	17.62	12.00	13.50	17.35	18.75
Aug.	15.06	19.70	13.75	13.87	18.03	18.75
Sept.	15.13	17.56	13.50	16.22	19.22	18.75
Oct.	14.30	14.69	12.88	19.16	19.75	18.75
Nov.	13.15	12.50	14.20	17.85	20.06	18.75
Dec.	12.50	12.38	13.75	16.67	20.80	18.75
Average	14.84	17.12	12.56	14.91	17.73	19.01

	1944*	1945	1946	1947	1948	1949
Jan.	$18.75	$18.75	$18.75	$29.75	$39.56	$40.06
Feb.	18.75	18.75	18.75	31.63	39.12	35.63
March	18.75	18.75	18.75	36.69	38.95	33.70
April	18.75	18.75	18.75	33.05	39.18	23.83
May	18.75	18.75	18.75	29.38	39.25	23.00
June	18.75	18.75	18.75	30.88	39.25	20.85
July	18.75	18.75	18.75	36.97	40.81	19.75
Aug.	18.75	18.75	18.75	39.88	41.75	22.00
Sept.	18.69	18.75	18.75	38.75	41.75	26.30
Oct.	16.90	18.75	18.75	40.50	41.75	25.50
Nov.	17.00	18.75	23.13	39.13	41.75	30.30
Dec.	18.69	18.75	27.25	38.90	41.75	27.30†
Average	18.27	18.75	19.87	35.45	40.40	27.34†

* Price unchanged at $18.75 throughout 1942 and 1943.
† Estimate.

SCRAP COMPOSITE PRICE

Average of THE IRON AGE quotations on No. 1 heavy melting scrap at Pittsburgh, Chicago and Philadelphia, per gross ton

	1929	1937	1938	1939	1940	1941*
Jan.	$17.02	$18.33	$14.00	$14.94	$17.58	$20.88
Feb.	16.96	19.27	13.86	15.01	16.88	20.08
March	16.71	21.25	13.46	15.20	16.56	20.29
April	17.18	21.02	12.40	14.77	16.14	19.22
May	16.54	18.54	11.54	14.17	17.60	19.17
June	16.39	17.28	11.32	14.71	19.31	19.17
July	16.60	18.79	13.29	14.92	18.47	19.17
Aug.	16.86	20.43	14.51	15.43	18.72	19.17
Sept.	16.60	18.73	14.34	18.32	19.91	19.17
Oct.	15.78	15.89	14.21	21.48	20.63	19.17
Nov.	14.83	13.34	14.74	19.66	20.83	19.17
Dec.	14.15	13.46	14.88	18.05	21.42	19.17
Average	16.30	18.03	13.54	16.39	18.67	19.49

	1944*	1945	1946	1947	1948	1949
Jan.	$19.17	$19.17	$19.17	$31.00	$40.81	$41.36
Feb.	19.17	19.17	19.17	33.31	40.35	38.21
March	19.17	19.17	19.17	38.65	40.00	35.43
April	19.17	19.17	19.17	33.85	40.31	23.86
May	19.17	19.05	19.17	29.81	40.60	22.67
June	19.17	19.00	19.17	32.79	40.65	20.78
July	19.17	19.17	19.17	37.95	41.60	19.33
Aug.	19.10	19.17	19.17	39.46	43.16	20.85
Sept.	17.87	19.17	19.17	37.77	43.16	25.67
Oct.	15.87	19.17	19.17	40.50	43.16	26.40
Nov.	16.54	19.17	23.34	41.21	43.04	28.96
Dec.	19.04	19.17	26.23	40.00	43.00	27.59†
Average	18.55	19.15	20.27	36.36	41.65	27.59†

* Price unchanged at $19.17 throughout 1942 and 1943. † Estimate.

Metal Industry Facts

Ore
Coke & coal
Pig iron
Scrap
Refractories

Canadian Blast Furnace Production (net tons)

Source: Dominion Bureau of Statistics

Year	Pig Iron	Ferro-alloys	Total Pig Iron and Ferro-alloys
1923	985,620	33,545	1,019,165
1924	664,186	29,624	693,810
1925	638,844	28,794	667,638
1926	826,003	64,305	890,308
1927	792,624	62,977	855,601
1928	1,162,254	50,267	1,212,521
1929	1,220,961	89,611	1,310,572
1930	838,839	73,049	908,888
1931	470,442	52,375	522,817
1932	161,425	18,100	179,525
1933	254,592	33,737	288,329
1934	455,789	37,055	492,844
1935	678,302	61,182	740,484
1936	759,618	87,679	847,297
1937	1,006,717	91,931	1,098,648
1938	789,710	59,720	849,430
1939	846,418	85,531	931,949
1940	1,309,161	151,661	1,460,822
1941	1,528,054	213,218	1,741,272
1942	1,975,015	213,636	2,188,651
1943	1,758,265	218,687	1,852,626
1944	1,852,626	182,428	4,012,006
1945	1,777,958	186,978	1,964,936
1946	1,403,758	116,995	1,520,753
1947	1,969,847	149,832	2,119,679
1948	2,120,909	250,659	2,371,568
1949*	2,169,310	207,280	2,376,590

* December output estimated.

Ferrosilicon, U. S. Imports for Consumption

(Short Tons, silicon content)

Source: U. S. Bureau of Mines

1933	1,290	1942	4,337
1934	1,102	1943	901
1935	875	1944	4,189
1936	590	1945	7,191
1937	2,269	1946	1,331
1938	701	1947	2,141
1939	1,160	1948	734
1940	1,235	1949	700*
1941	6,190		

* Nine months.

Ferrosilicon Production by U. S. Furnaces

(short tons)

Source: U. S. Bureau of Mines

1933	223,487*	1942	712,710
1934	233,555	1943	818,351
1935	294,856*	1944	700,358
1936	329,774	1945	660,403
1937	405,989	1946	614,422
1938	279,808	1947	769,653
1939	313,560	1948	814,297
1940	409,899	1949	508,535†
1941	618,227		

* Shipments.
† Nine months.

Chemically Bonded Magnesite Brick

Baltimore, f.o.b. plant

(per short ton)

Source: THE IRON AGE

	1939	1940	1941*	1947*	1948	1949
Jan.	$57.00	$61.00	$61.00	$65.00	$75.00	$80.00
Feb.	57.00	61.00	61.00	65.00	75.00	80.00
Mar.	57.00	61.00	61.00	69.00	75.00	80.00
Apr.	57.00	61.00	61.00	70.00	75.00	80.00
May	57.00	61.00	61.00	70.00	75.00	80.00
June	57.00	61.00	62.00	70.00	75.00	80.00
July	57.00	61.00	65.00	70.00	76.00	80.00
Aug.	57.00	61.00	65.00	70.00	80.00	80.00
Sept.	57.00	61.00	65.00	70.00	80.00	80.00
Oct.	57.00	61.00	65.00	70.00	80.00	80.00
Nov.	57.00	61.00	65.00	70.00	80.00	80.00
Dec.	57.00	61.00	65.00	74.00	80.00	80.00
Average	57.00	61.00	63.00	69.00	77.00	80.00

* Price unchanged at $65.00 from 1942 through 1946.

50 Pct Ferrosilicon

(carloads, per gross ton, delivered†)

Source: THE IRON AGE

	1929	1937	1938	1939	1940*
Jan.	$83.50	$89.50	$89.50	$89.50	$89.50
Feb.	83.50	89.50	89.50	89.50	89.50
March	83.50	89.50	89.50	89.50	89.50
April	83.50	89.50	89.50	89.50	89.50
May	83.50	89.50	89.50	89.50	89.50
June	83.50	89.50	89.50	89.50	72.00
July	83.50	89.50	89.50	89.50	74.50
Aug.	83.50	89.50	89.50	89.50	74.50
Sept.	83.50	89.50	89.50	89.50	74.50
Oct.	83.50	89.50	89.50	89.50	74.50
Nov.	83.50	89.50	89.50	89.50	74.50
Dec.	83.50	89.50	89.50	89.50	74.50
Average	83.50	89.50	89.50	89.50	72.11

	1943*	1944	1945	1946	1947	1948	1949
Jan.	$74.50	6.65	6.65	6.65	7.45	9.80	11.30
Feb.	74.50	6.65	6.65	6.65	7.45	9.80	11.30
March	74.50	6.65	6.65	6.65	7.45	9.80	11.30
April	74.50	6.65	6.65	6.65	7.80	9.80	11.30
May	74.50	6.65	6.65	6.65	7.80	9.80	11.30
June	74.50	6.65	6.65	6.65	7.80	9.80	11.30
July	6.65	6.65	6.65	7.05	7.80	9.80	11.30
Aug.	6.65	6.65	6.65	7.05	7.80	9.80	11.30
Sept.	6.65	6.65	6.65	7.05	7.80	9.80	11.30
Oct.	6.65	6.65	6.65	7.05	8.80	10.50	11.30
Nov.	6.65	6.65	6.65	7.05	8.80	10.50	11.30
Dec.	6.65	6.65	6.65	7.05	9.18	10.50	11.30
Average	6.65	6.65	6.65	6.85	7.99	9.98	11.30

† Cents per lb of contained Si, since July 1943. Delivered east of Mississippi only, prior to October 7, 1948.
* Price unchanged at $74.50 throughout 1941 and 1942.

LAKE SUPERIOR IRON ORES

(per gross ton, at lower Lake Erie ports)

Source: THE IRON AGE

BESSEMER ORES

	Guarantee		Price	
	Iron Natural	Phosphorus Dry	Old Range	Mesabi
1915	55.00	0.045	$3.75	$3.45
1916	55.00	0.045	4.45	4.20
1917	55.00	0.045	5.95	5.70
1918 to July 1	55.00	0.045	5.95	5.70
1918–July 1 to Sept. 30	55.00	0.045	6.40	6.15
1918–Oct. 1 on	55.00	0.045	6.65	6.40
1919	55.00	0.045	6.45	6.20
1920	55.00	0.045	7.45	7.20
1921	55.00	0.045	6.45	6.20
1922	55.00	0.045	5.95	5.70
1923	55.00	0.045	6.45	6.20
1924	55.00	0.045	4.85	5.40
1925 through 1928	51.50	0.045	4.55	4.40
1929 through 1936	51.50	0.045	4.80	4.65
1937 to Apr. 15, 1940	51.50	0.045	5.25	5.10
1940–Apr. 16 on	51.50	0.045	4.75	4.80
1941 through 1944	51.50	0.045	4.75	4.80
1945 to June 24, 1946	51.50	0.045	4.95	4.70
1946–June 24 to Dec. 31	51.50	0.045	5.45	5.20
1947 to Apr. 1, 1948	51.50	0.045	5.95	5.70
1948–Apr. 1 on	51.50	0.045	6.80	6.35
1949	51.50	0.042	7.80	7.35

NON-BESSEMER ORES

	Guarantee	Price		
	Iron Natural	Old Range	Mesabi	High Phosphorus
1915	51.50	$3.00	$2.80	....
1916	51.50	3.70	3.55	....
1917	51.50	5.20	5.05	....
1918 to July 1	51.50	5.20	5.05	....
1918–July 1 to Sept. 30	51.50	5.65	5.50	....
1918–Oct. 1 on	51.50	5.90	5.75	....
1919	51.50	5.70	5.55	$5.35
1920	51.50	6.70	6.55	6.35
1921	51.50	5.70	5.55	5.35
1922	51.50	5.20	5.05	4.85
1923	51.50	5.70	5.55	5.35
1924	51.50	4.90	4.75	4.55
1925 through 1928	51.50	4.40	4.25	4.15
1929 through 1936	51.50	4.65	4.50	4.40
1937 to Apr. 15, 1940	51.50	5.10	4.95	4.85
1940–Apr. 16 on	51.50	4.60	4.45	4.35
1941 through 1944	51.50	4.60	4.45	4.35
1945 to June 24, 1946	51.50	4.80	4.65	4.55
1946–June 24 to Dec. 31	51.50	5.30	5.05	5.05
1947 to Apr. 1, 1948	51.50	5.80	5.65	5.55
1948–Apr. 1 on	51.50	6.45	6.20	6.20
1949	51.50	7.45	7.20	7.20

CHROMITE IMPORTS

U. S. Imports for Consumption (Short Tons Cr_2O_3 Content)

Source: Dept. of Commerce

	1943	1944	1945	1946	1947	1948	1949*
Canada	8,016	9,533	1,804	4,090	34	52	.....
Cuba	112,554	123,504	103,482	73,129	59,399	57,813	30,004
India	1,372	.....	.....	8,500	5,065	.....	941
New Caledonia	15,821	16,486	17,806	11,326	10,185	24,884	30,203
Philippines	.....	.....	.....	10,469	71,793	81,669	90,754
Sierra Leone	.....	.....	.....	14,184	8,968	3,481	4,122
Southern Rhodesia	116,718	90,251	104,048	47,228	36,402	59,520	35,459
Turkey	42,383	47,810	34,829	4,328	28,854	119,646	106,904
South Africa	50,340	17,754	48,265	106,831	118,446	133,498	88,781
U. S. S. R.	48,227	57,816	86,378	53,391	136,021	190,118	41,403
Yugoslavia	.....	.....	.....	.....	10,824	5,863	4,843
Brazil	4,233	2,008	1,272	.....	.....	860	.....
Cyprus	3,729	.....	.....	.....	.....	2,509	.....
Total imports	404,361	365,694	400,742	332,456	485,991	680,723	433,394*

* Nine months.

CHROMITE SHIPMENTS

Ore Shipped by U. S. Mines

(short tons)

Source: Bureau of Mines

1917	48,972	1934	413
1918	92,322	1935	577
1919	5,688	1936	301
1920	2,802	1937	2,600
1921	316	1938	909
1922	396	1939	4,048
1923	254	1940	2,982
1924	323	1941	14,258
1925	121	1942	112,576
1926	158	1943	160,120
1927	225	1944	45,629
1928	739	1945	13,973
1929	301	1946	4,107
1930	90	1947	948
1931	300	1948	3,619
1932	174	1949	264*
1933	944		

* Nine months.

WORLD PRODUCTION OF PIG IRON

(net tons in thousands)

Source: American Iron and Steel Institute, Chambre Syndicale de la Siderurgie Francaise and Statistical Office of the United Nations

	1949*	1948	1947	1946	1945	1944	1943	1942	1941	1940	1939
United States	52,500	61,912	60,117	46,515	54,919	62,866	62,770	60,903	56,687	47,399	35,877
Canada	2,377	2,335	2,152	1,525	1,976	2,012	1,930	2,156	1,708	1,448	930
United Kingdom	10,620	10,389	8,457	8,692	7,960	7,545	8,049	8,653	8,280	9,189	8,937
Belgium	4,038	4,348	3,109	2,393	802	780	1,601	1,398	1,572	1,976	3,382
Luxemburg	2,587	2,896	2,004	1,505	344	1,481	2,526	1,865	1,481	1,164	2,024
France	9,281	7,248	5,383	3,796	1,304	3,189	5,424	4,231	3,694	4,060	8,131
Netherlands	470	487	180	128	.....	.....	.....	.....	.....	305	304
Hungary	500	336	330	176	1	326	460	460	487	471	451
Germany†	7,743	6,394	2,491	2,425	1,550	14,737	17,606	17,021	17,012	15,383	19,266
Saar	1,745	1,252	721	271	.....	1,634	2,411	2,224	2,258	2,008	2,091
Austria	949	679	306	64	.....	.....	.....	.....	.....	.....	.....
Czechoslovakia	1,900	1,622	1,569	1,058	635	1,746	1,878	1,759	1,733	1,786	1,773
Poland	1,300	1,199	944	800	252	271	290	.....	.....	.....	1,160
Yugoslavia	.....	.....	.....	.....	.....	.....	.....	.....	83	92	67
Rumania	.....	.....	.....	.....	.....	.....	.....	.....	.....	150	149
Russia	18,960*	15,750*	12,450*	11,250*	10,140*	16,800	11,100	7,700	14,300	16,500	16,810
Italy	481	580	425	226	83	341	802	1,077	1,229	1,239	1,212
Spain	651	562	551	540	519	607	643	592	591	639	522
Sweden	906	861	779	771	839	941	874	837	814	868	710
Japan‡	1,600	922	391	202	556	3,434	5,089	5,475	5,268	4,422	4,016
Australia**	955	1,384	1,329	1,204	1,252	1,462	1,466	1,745	1,653	1,357	1,279
Total	120,000*	121,354	103,687	83,541	83,132	120,171	125,121	118,095	118,847	110,455	108,630

Includes ferroalloys made in the blast furnace.
* Estimate by THE IRON AGE.
† 1948 and 1949 figures do not include production in the Russian Zone. Saar and Austria are not included.
‡ Home Islands, Korea and Manchuria in 1944 and previous years.
** Year ending June 30.

No. 2 Foundry Pig Iron at Chicago

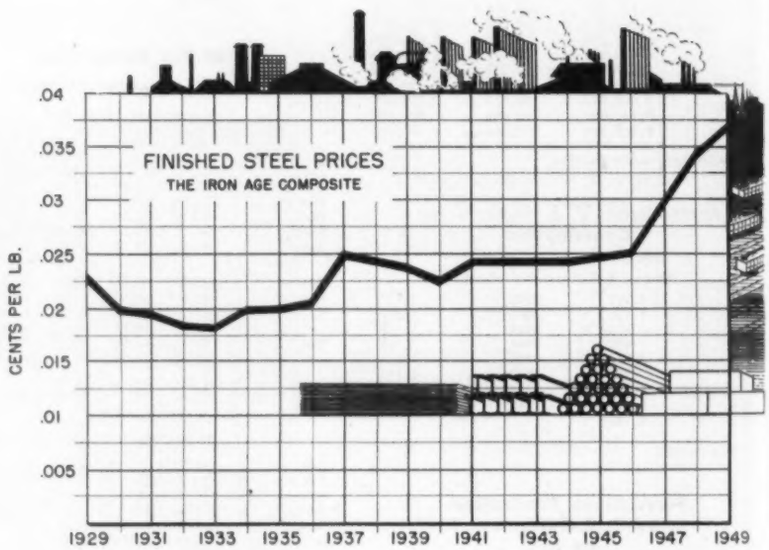
(per gross ton, at furnace)

Source: THE IRON AGE

	1929	1934	1936	1937	1938	1939
Jan.	$20.00	$17.50	$19.50	$21.00	$24.00	$21.00
Feb.	20.00	17.50	19.50	21.25	24.00	21.00
Mar.	20.00	17.50	19.50	23.60	24.00	21.00
Apr.	20.00	17.75	19.50	24.00	24.00	21.00
May	20.00	18.50	19.50	24.00	24.00	21.00
June	20.00	18.50	19.50	24.00	23.20	21.00
July	20.00	18.50	19.50	24.00	20.00	21.00
Aug.	20.00	18.50	19.50	24.00	20.00	21.00
Sept.	20.00	18.50	19.50	24.00	20.25	22.00
Oct.	20.00	18.50	19.50	24.00	21.00	23.00
Nov.	20.00	18.50	19.75	24.00	21.00	23.00
Dec.	20.00	18.50	20.50	24.00	21.00	23.00
Average	20.00	18.19	19.60	23.49	22.20	21.59

	1940*	1945*	1946	1947	1948	1949
Jan.	$23.00	$24.00	$25.75	$30.50	$38.75	$46.50
Feb.	23.00	24.50	25.75	30.50	39.00	46.50
Mar.	23.00	25.00	26.13	33.00	39.00	46.50
Apr.	23.00	25.00	26.50	33.00	39.00	46.50
May	23.00	25.00	26.50	33.00	39.00	46.50
June	23.00	25.00	26.50	33.00	39.00	46.50
July	23.00	25.00	26.50	34.20	42.00	46.50
Aug.	23.00	25.00	26.50	36.00	43.00	46.50
Sept.	23.00	25.00	26.50	36.00	43.00	46.50
Oct.	23.00	25.30	26.50	36.00	46.50	46.50
Nov.	23.00	25.75	26.50	36.00	46.50	46.50
Dec.	23.40	25.75	30.10	36.40	46.50	46.50
Average	23.03	25.02	27.64	34.80	41.77	46.50

* Price unchanged at $24.00 from 1941 through 1944.



WORLD PRODUCTION OF CHROMITE

(metric tons)

Source: U. S. Bureau of Mines

	1941	1942	1943	1944	1945	1946	1947	1948
Union of South Africa	141,884	337,620	163,232	88,909	99,090	212,253	373,094	412,783
U.S.S.R.	(2)	400,000[4]	325,000[1]	(2)	(2)	(2)	(2)	(2)
Philippines, Republic of	329,243	50,000[1]	60,000[1]	70,000[1]	(2)	58,000	195,185	256,854
Cuba	163,175	286,470	354,152	192,131	172,626	174,350	159,209	116,624
Southern Rhodesia	322,123	348,314	287,453	277,051	186,318	151,433	154,242	230,703
Turkey	150,303	130,053	165,633	139,397	146,716	103,167	102,875	285,353
New Caledonia	64,509	67,610	46,952	55,229	40,826	24,948	50,530	75,021
India	50,940	50,380	33,789	40,190	31,105	45,510	32,000[1]	(2)
Sierra Leone	13,907	10,726	16,306	9,851	578	33,641[5]	18,000[1]	7,886
Greece	16,240	24,300	15,500	18,295	2,413	8,500	8,000[1]	1,500
Cyprus (exports)	4,816	2,936	7,986	489	1,070	1,158	5,283	6,899
Yugoslavia	(2)	100,000[1]	65,000[1]	(2)	(2)	(2)	(2)	(2)
Bulgaria	(2)	6,500[1]	7,000[1]	(2)	(2)	(2)	(2)	(2)
Canada	2,152	10,393	26,848	24,543	5,221	2,821	1,814	1,497
Japan[3]	54,516	67,540	58,520	71,135	28,539	7,079	2,347	9,340
United States	12,935	102,400	145,259	41,394	12,676	3,726	880	3,283
Albania	20,000[1]	5,000[1]	.....	.....	.....	.....	.....	16,500[4]
Brazil (exports)	5,944	5,776	7,813	4,721	1,490	.....	(2)	1,626
Total World production[1]	1,770,000	2,012,000	1,798,000	1,350,000	1,100,000	1,140,000	1,650,000	2,113,000

[1] Estimate.
[2] Data not available; estimates by Bureau of Mines included in total.
[3] Preliminary.
[4] Planned production.
[5] Exports.

U. S. COAL CONSUMPTION

(short tons)

Source: U. S. Bureau of Mines

	Bituminous	Anthracite
1930	454,990,000	[1]
1931	371,869,000	58,400,000
1932	306,917,000	50,500,000
1933	321,748,000	49,600,000
1934	347,043,000	55,500,000
1935	380,292,000	51,100,000
1936	422,795,000	53,200,000
1937	432,603,000	50,400,000
1938	338,086,000	45,200,000
1939	377,773,000	49,700,000
1940	432,757,000	49,000,000
1941	494,088,000	52,700,000
1942	542,214,000	56,500,000
1943	596,164,000	57,100,000
1944	591,830,000	59,400,000
1945	559,567,000	51,600,000
1946	500,386,000	53,900,000
1947	557,243,000	48,200,000
1948	536,672,000	50,200,000
1949	[1]	[1]

[1] Not available.

Metal Industry Facts

Ore
Coke & coal
Pig iron
Scrap
Refractories

PIG IRON PRODUCTION BY STATES
(short tons in thousands)

Source: American Iron & Steel Institute

	1949*	1948	1947	1946	1945	1944	1939
Pennsylvania	15,400	17,742	17,563	13,251	16,171	18,510	9,809
Ohio	10,800	12,471	12,317	9,534	11,299	13,371	8,033
Indiana, Michigan	7,000	8,032	7,779	6,190	7,436	8,474	4,787
Illinois	4,800	5,513	5,600	4,357	5,045	5,686	2,969
Md., W. Va., Ky., Tenn., Tex.	4,700	5,468	4,481	3,605	4,327	4,781	3,117‡
Alabama	3,600	4,013	3,929	3,149	3,562	3,949	2,936
Massachusetts, New York	3,400	3,875	3,869	2,780	3,295	3,947	2,423
Minn., Colo., Utah, Cal.	2,500	2,941	2,792	1,912	2,109	2,289	735†

*Estimate by The Iron Age.
‡Does not include Texas.
†Includes Iowa.

U. S. IMPORTS OF PIG IRON
(short tons)

Source: U. S. Dept. of Commerce

	1949*	1948	1947	1946	1945	1944	1943	1942	1941	1940
Netherlands	8,999	45,020	2,710	.....	.....	.....	.....	.....	.....	.....
Belgium	14,007	32,809	.....	.....	.....	.....	.....	.....	.....	.....
Australia	17,499	26,901	.....	.....	.....	.....	333	.....	3,367	.....
Germany	2,127	24,558	.....	.....	.....	.....	.....	.....	.....	.....
Norway	105	23,920	9,482	.....	.....	.....	.....	.....	.....	.....
Austria	4,594	18,594	281	.....	.....	.....	.....	.....	.....	.....
France	304	17,876	.....	.....	.....	.....	.....	.....	.....	.....
India	20,605	16,100	.....	.....	.....	.....	500	.....	.....	7,645
Canada	754	5,729	1,747	1,287	21,433	5,778	49	.....	306	3,826
Italy	.....	5,001	.....	.....	.....	.....	.....	.....	.....	.....
United Kingdom	172	.....	.....	1,528	.....	.....	560	.....	.....	.....
French Morocco	.....	.....	.....	.....	.....	.....	185	.....	.....	.....
Mexico	.....	.....	.....	11,248	.....	.....	.....	.....	.....	.....
Other Countries	340	2,192	18,404	28	.....	.....	.....	.....	.....	.....
Total	69,506*	218,700	32,624	14,091	21,433	5,778	1,610	.....	3,675	11,471

* Nine months.

CONSUMPTION OF SCRAP
(gross tons)

Source: U. S. Bureau of Mines, and Institute of Scrap Iron and Steel

	Domestic Consumption (Purchased and Home)	Exports (Purchased)	Imports (Purchased)
1910	13,100,000	25,825	72,764
1911	12,100,000	77,918	17,272
1912	16,100,000	105,965	23,612
1913	15,300,000	94,429	44,154
1914	12,200,000	33,134	34,839
1915	18,600,000	79,381	79,982
1916	23,400,000	212,765	116,039
1917	26,800,000	145,574	180,034
1918	25,400,000	2,160	63,730
1919	20,700,000	27,275	177,293
1920	26,000,000	219,250	140,645
1921	12,400,000	37,592	41,489
1922	23,700,000	67,784	142,989
1923	27,000,000	65,980	162,066
1924	26,200,000	97,748	66,841
1925	30,700,000	82,573	99,815
1926	32,200,000	104,838	86,725
1927	30,700,000	239,209	60,207
1928	34,000,000	516,148	63,314
1929	37,600,000	557,044	90,479
1930	26,600,000	358,649	27,482
1931	18,300,000	136,125	16,279
1932	10,000,000	227,522	9,775
1933	17,400,000	773,406	56,133
1934	18,800,000	1,835,170	44,421
1935	26,415,330	2,103,959	64,768
1936	36,358,133	1,936,132	142,245
1937	38,006,272	4,092,590	81,640
1938	21,344,934	2,998,591	24,451
1939	32,434,407	3,577,427	29,492
1940	39,758,635	2,820,789	1,927
1941	52,871,657	792,760	64,095
1942	53,808,171	126,473	82,257
1943	55,045,495	48,957	126,018
1944	54,776,072	85,430	97,162
1945	50,170,612	76,318	41,313
1946	44,182,240	121,679	26,984
1947	54,343,000	173,413	32,312
1948	58,285,000	216,093	370,600
1949	45,750,000*	500,000*	1,050,000*

* Estimate by THE IRON AGE.

Basic Pig Iron at Mahoning or Shenango Valley Furnaces
(per gross ton)

Source: THE IRON AGE

	1929	1934	1936	1937	1938	1939
Jan.	$17.50	$17.00	$19.00	$20.50	$23.50	$20.50
Feb.	17.50	17.00	19.00	20.75	23.50	20.50
March	17.50	17.00	19.00	23.10	23.50	20.50
April	17.90	17.25	19.00	23.50	23.50	20.50
May	18.38	18.00	19.00	23.50	23.50	20.50
June	18.50	18.00	19.00	23.50	22.70	20.50
July	18.50	18.00	19.00	[23.50 [	19.50	20.50
Aug.	18.50	18.00	19.00	23.50	19.50	20.50
Sept.	18.50	18.00	19.00	23.50	19.75	21.50
Oct.	18.50	18.00	19.00	23.50	20.50	22.50
Nov.	18.50	18.00	19.25	23.50	20.50	22.50
Dec.	18.50	18.00	20.00	23.50	20.50	22.50
Average	18.19	17.69	19.10	22.99	21.70	21.09

	1940*	1945*	1946	1947	1948	1949
Jan.	$22.50	$23.50	$25.25	$30.00	$38.87	$46.00
Feb.	22.50	24.00	25.25	30.00	39.00	46.00
March	22.50	24.50	25.63	33.00	39.00	46.00
April	22.50	24.50	26.00	33.00	39.00	46.00
May	22.50	24.50	26.00	33.00	39.00	46.00
June	22.50	24.50	28.00	33.00	39.00	46.00
July	22.50	24.50	28.00	34.20	42.00	46.00
Aug.	22.50	24.50	28.00	36.00	43.00	46.00
Sept.	22.50	24.50	28.00	36.00	43.00	46.00
Oct.	22.50	24.80	28.00	36.00	45.62	46.00
Nov.	22.50	25.25	28.00	36.00	46.00	46.00
Dec.	22.90	25.25	29.60	36.20	46.00	46.00
Average	22.53	24.52	27.14	34.78	41.62	46.00

* Price unchanged at $23.50 from 1941 through 1944.

Ferromanganese, 80 Pct
(carloads, per gross ton, average of eastern producers†)

Source: THE IRON AGE

	1929	1934	1935	1937	1938	1939
Jan.	$105.00	$85.00	$75.00	$80.00	$102.50	$85.00
Feb.	105.00	85.00	75.00	80.00	102.50	80.00
March	105.00	85.00	75.00	89.00	102.50	80.00
April	105.00	85.00	75.00	95.00	102.50	80.00
May	105.00	85.00	75.00	100.62	102.50	80.00
June	105.00	85.00	75.00	102.50	102.50	80.00
July	105.00	85.00	75.00	102.50	92.50	80.00
Aug.	105.00	85.00	75.00	102.50	92.50	80.00
Sept.	105.00	85.00	75.00	102.50	92.50	95.00
Oct.	105.00	85.00	75.00	102.50	92.50	100.00
Nov.	105.00	85.00	80.00	102.50	92.50	100.00
Dec.	105.00	85.00	80.00	102.50	92.50	100.00
Average	105.00	85.00	75.83	98.84	97.50	86.67

	1940	1941	1942*	1947*	1948	1949
Jan.	$100.00	$120.00	$120.00	$135.00	$145.00	$161.40
Feb.	100.00	120.00	120.00	135.00	145.00	161.40
March	100.00	120.00	120.00	135.00	145.00	169.56
April	100.00	120.00	120.00	135.00	145.00	173.40
May	100.00	120.00	135.00	135.00	145.00	173.40
June	110.00	120.00	135.00	135.00	145.00	173.40
July	120.00	120.00	135.00	135.00	145.00	173.40
Aug.	120.00	120.00	135.00	135.00	145.00	173.40
Sept.	120.00	120.00	135.00	135.00	145.00	173.40
Oct.	120.00	120.00	135.00	145.00	162.00	173.40
Nov.	120.00	120.00	135.00	145.00	162.00	173.40
Dec.	120.00	120.00	135.00	145.00	162.00	173.40
Average	110.84	120.00	130.00	137.50	149.25	171.08

† Seaboard price prior to October 7, 1948.
* Price unchanged at $135.00 from 1943 through 1946.

Spiegeleisen, 19 to 21 Pct
(carloads, per gross ton, Palmerton, Pa.)

Source: THE IRON AGE

	1929	1933	1934	1936	1937	1938
Jan.	$31.00	$24.00	$27.00	$26.00	$26.00	$33.00
Feb.	31.00	24.00	27.00	26.00	26.00	33.00
March	31.00	24.00	26.50	26.00	28.40	33.00
April	31.00	24.00	26.00	26.00	30.00	33.00
May	31.00	24.00	24.00	26.00	32.25	33.00
June	31.00	24.00	26.00	26.00	33.00	33.00
July	31.00	27.00	26.00	26.00	33.00	28.00
Aug.	31.00	27.00	26.00	26.00	33.00	28.00
Sept.	31.00	27.00	26.00	26.00	33.00	28.00
Oct.	31.00	27.00	26.00	26.00	33.00	28.00
Nov.	31.00	27.00	26.00	26.00	33.00	28.00
Dec.	31.00	27.00	26.00	26.00	33.00	28.00
Average	31.00	25.50	26.21	26.00	31.14	30.50

	1939	1940*	1946*	1947	1948	1949
Jan.	$28.00	$32.00	$36.00	$40.00	$47.00	$62.00
Feb.	28.00	32.00	36.00	40.00	47.00	62.00
March	28.00	32.00	36.00	42.00	48.00	63.20
April	28.00	32.00	36.00	44.00	52.00	65.00
May	28.00	32.00	36.00	44.00	52.00	65.00
June	28.00	34.40	36.00	44.00	52.00	65.00
July	28.00	36.00	36.00	44.00	52.00	65.00
Aug.	28.00	36.00	36.00	46.25	53.00	65.00
Sept.	31.00	36.00	36.00	47.00	60.75	65.00
Oct.	32.00	36.00	36.00	47.00	62.00	65.00
Nov.	32.00	36.00	38.00	47.00	62.00	65.00
Dec.	32.00	36.00	40.00	47.00	62.00	65.00
Average	29.25	34.20	36.50	44.35	54.15	64.35

* Price unchanged at $36.00 from 1941 through 1945.

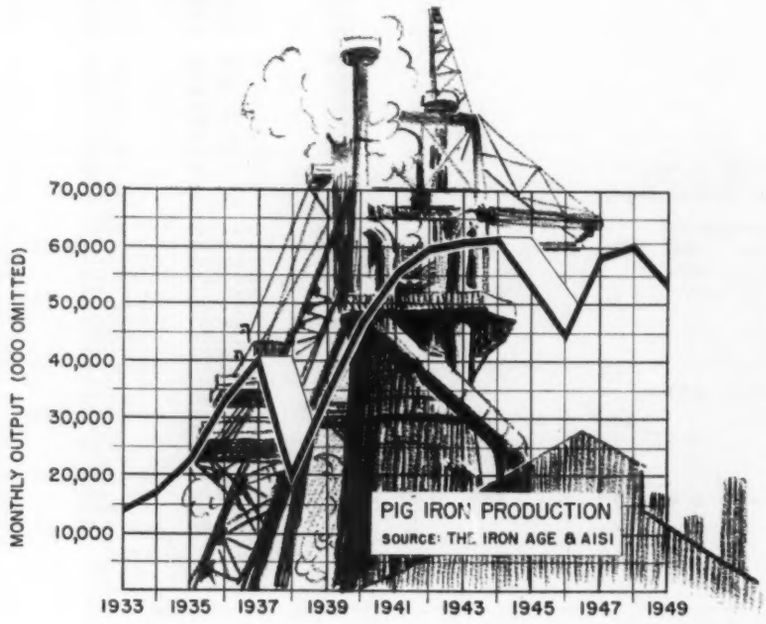
U. S. IRON ORE PRODUCTION

(gross tons)

Source: U. S. Bureau of Mines

Year	Lake Superior	Northeastern	Southeastern	Western	Total
1930	49,383,383	2,248,682	5,838,105	938,492	58,408,664
1931	25,677,416	936,960	3,644,606	872,520	31,131,502
1932	8,139,427	185,009	1,375,459	167,021	9,846,916
1933	14,611,032	396,228	2,159,908	385,970	17,553,188
1934	21,031,019	908,944	2,347,625	300,028	24,587,616
1935	25,368,637	1,349,247	3,295,684	526,684	30,540,252
1936	41,781,215	2,069,764	4,214,587	723,179	48,788,745
1937	61,657,635	3,145,177	6,351,053	939,683	72,093,548
1938	21,308,410	2,306,910	4,325,729	506,233	28,447,282
1939	41,679,808	3,112,883	[1]6,021,781	917,448	51,731,730
1940	61,471,323	3,559,924	[1]7,446,103	1,218,549	73,695,899
1941	78,858,332	3,962,072	8,145,900	1,443,275	92,409,579
1942	91,005,021	3,119,506	9,159,228	1,599,429	[2]105,526,195
1943	85,789,017	3,467,575	8,478,736	2,859,994	[2]101,247,835
1944	79,111,320	3,849,396	7,121,676	3,442,405	[2]94,117,705
1945	74,821,045	3,620,147	6,329,987	3,087,774	[2]88,376,393
1946	59,042,154	2,596,349	6,247,096	2,450,611	[2]70,843,113
1947	76,531,769	3,987,195	7,527,321	4,502,512	[2]93,091,520
1948	82,630,430	4,422,971	8,365,390	5,104,703	[2]101,003,492
1949	[3]68,259,000	[3]3,778,000	[3]7,444,000	[3]4,238,000	[2][3]84,313,000

[1] Includes Texas.
[2] Includes by-product ore not assigned to districts.
[3] Estimate by Bureau of Mines.



IRON ORE RESERVES OF MINNESOTA

(Gross Tons)

Source: Minnesota Department of Taxation

	Mesabi Range	Vermilion Range	Cuyuna Range	Total
May 1, 1920	1,305,926,735	10,927,844	24,819,859	1,341,674,538
May 1, 1930	1,154,434,031	14,250,540	66,542,939	1,235,227,510
May 1, 1940	1,139,314,272	13,841,272	65,431,104	1,218,586,648
May 1, 1945	973,129,581	12,715,183	59,787,900	1,045,632,664
May 1, 1946	935,323,167	11,850,889	59,229,985	1,006,403,041
May 1, 1947	937,071,161	11,135,293	56,089,288	1,004,482,442*
May 1, 1948	930,828,139	10,760,141	38,430,351	980,412,870*
May 1, 1949	909,484,000**	12,515,000**	37,719,000**	960,266,000**

Note: Figures represent the estimated reserve tonnages as reported by the Minnesota Department of Taxation, and comprise the tonnage of ore in the ground plus the ore in reserve and current stockpiles. The figures do not include ore on state lands that were not under lease as of May 1 of each year: the estimated total tonnage for May 1, 1948 was 3,584,084 tons.
* Includes Fillmore County District: 186,700 tons in 1947; 394,248 tons in 1948 and 548,000 tons in 1949.
** Tentative figures.

Consumers' Inventories of Scrap

(gross tons)

Source: U. S. Bureau of Mines

Date	Purchased	Home
December 31, 1948	4,031,000	1,384,000
January 31, 1949	4,058,000	1,326,000
February 28, 1949	3,999,000	1,253,000
March 31, 1949	3,907,000	1,309,000
April 30, 1949	3,764,000	1,388,000
May 31, 1949	3,678,000	1,452,000
June 30, 1949	3,637,000	1,563,000
July 31, 1949	3,507,000	1,597,000
September 30, 1949	2,940,000	1,367,000

Coke Consumption by Blast Furnaces

(short tons)

Source: American Iron & Steel Institute

1938	19,035,270
1939	31,422,272
1940	41,839,039
1941	49,469,972
1942	54,694,748
1943	56,701,419
1944	57,071,689
1945	50,653,221
1946	43,178,789
1947	57,147,644
1948	59,128,129

Canadian Pig Iron Capacity and Production

(excluding ferroalloys)

(net tons)

Source: Dominion Bureau of Statistics

	Capacity	Production	Percent of Capacity
1936	1,450,875	759,618	52.3
1937	1,450,875	1,006,717	69.3
1938	1,450,875	789,710	54.4
1939	1,450,875	846,418	58.3
1940	1,450,875	1,309,181	90.2
1941	1,815,875	1,528,054	84.1
1942	2,123,320	1,975,015	93.0
1943	2,756,160	1,756,265	63.7
1944	2,770,760	1,852,628	66.8
1945	2,770,760	1,777,958	64.1
1946	2,770,760	1,403,758	50.6
1947	2,745,760	1,969,847	71.7
1948	2,745,760	2,120,909	77.2
1949	2,745,760	2,189,310*	79.0*

* December output estimated.

Canadian Pig Iron, Ferroalloy Production

(short tons)

Source: Dominion Bureau of Statistics

	Pig Iron		Ferroalloys	
	1949	1948	1949	1948
Jan.	183,074	160,042	21,931	17,125
Feb.	172,724	151,123	21,713	11,823
Mar.	202,130	172,675	22,457	14,293
Apr.	180,740	170,785	24,427	14,474
May	202,148	193,305	20,652	18,436
June	194,255	183,763	19,264	13,502
July	175,381	187,940	14,280	12,939
Aug.	180,115	191,383	12,562	12,700
Sept.	168,436	182,465	12,250	12,318
Oct.	166,020	186,424	15,456	19,469
Nov.	165,000*	166,771	15,000*	17,594
Dec.	165,000*	174,233	15,000*	23,708
Total	2,155,000*	2,120,909	215,000*	250,659†

* Estimate.
† Total figure includes additional tonnage for which monthly data are not reported.

Chemically Bonded Chrome Brick

Baltimore, f.o.b. plant

(per short ton)

Source: THE IRON AGE

	1939	1940	1941*	1947*	1948	1949
Jan.	$47.00	$50.00	$50.00	$54.00	$64.00	$69.00
Feb.	47.00	50.00	50.00	54.00	64.00	69.00
Mar.	47.00	50.00	50.00	58.00	64.00	69.00
Apr.	47.00	50.00	50.00	59.00	64.00	69.00
May	47.00	50.00	50.00	59.00	64.00	69.00
June	47.00	50.00	51.00	59.00	64.00	69.00
July	47.00	50.00	54.00	59.00	65.00	69.00
Aug.	47.00	50.00	54.00	59.00	69.00	69.00
Sept.	47.00	50.00	54.00	59.00	69.00	69.00
Oct.	47.00	50.00	54.00	59.00	69.00	69.00
Nov.	47.00	50.00	54.00	59.00	69.00	69.00
Dec.	47.00	50.00	54.00	63.00	69.00	69.00
Average	47.00	50.00	52.00	59.00	66.00	69.00

* Price unchanged at $54.00 from 1942 through 1946.

Burned Magnesite Brick

Baltimore, f.o.b. plant

(per short ton)

Source: THE IRON AGE

	1939	1940	1941*	1947*	1948	1949
Jan.	$67.00	$72.00	$72.00	$76.00	$86.00	$91.00
Feb.	67.00	72.00	72.00	76.00	86.00	91.00
Mar.	67.00	72.00	72.00	80.00	86.00	91.00
Apr.	67.00	72.00	72.00	81.00	86.00	91.00
May	67.00	72.00	72.00	81.00	86.00	91.00
June	67.00	72.00	73.00	81.00	86.00	91.00
July	67.00	72.00	76.00	81.00	87.00	91.00
Aug.	67.00	72.00	76.00	81.00	91.00	91.00
Sept.	67.00	72.00	76.00	81.00	91.00	91.00
Oct.	67.00	72.00	76.00	81.00	91.00	91.00
Nov.	67.00	72.00	76.00	81.00	91.00	91.00
Dec.	67.00	72.00	76.00	85.00	91.00	91.00
Average	67.00	72.00	74.00	80.00	88.00	91.00

* Price unchanged at $76.00 from 1942 through 1946.

Metal Industry Facts

Ore
Coke & coal
Pig iron
Scrap
Refractories

U. S. Production of Spiegeleisen

(short tons)

Source: U. S. Bureau of Mines

1930	97,508	1940	114,119
1931	75,936	1941	177,915
1932	41,795	1942	186,026
1933	29,885	1943	149,036
1934	51,261*	1944	165,530
1935	67,220	1945	139,039
1936	106,553	1946	111,696
1937	151,181*	1947	134,329
1938	12,668	1948	112,610
1939	102,470	1949	70,000†

* Shipments from mines.
† Estimated by The Iron Age.

WORLD PRODUCTION OF MANGANESE ORE

(in metric tons)

Source: U. S. Bureau of Mines

	Percent Mn	1941	1942	1943	1944	1945	1946	1947	1948
U.S.S.R. (estimate)	41–48	2,393,000	1,823,000[3]	1,000,000	461,000	2,251,000	1,700,000	1,800,000	1,900,000
Gold Coast	50†	498,881	691,016	534,362[4]	479,499[4]	713,013[4][5]	777,583[4][5]	598,855[4][5]	640,088[5]
India	47–52	798,555	769,423	604,922	376,251	213,602	256,975	350,000	318,220[5]
Union of South Africa	30–51	445,893	394,445	219,122	106,883	114,546	237,897	288,213	276,393
Brazil (exports)	38–50	437,402	306,241	275,552	148,983	244,649	149,149	142,092	141,253
United States (shipments)	35†	79,646	173,043	186,129	224,632	165,412	130,303	119,409	118,931
Morocco, French	32–50	50,722	44,273	49,010	27,550	45,292	57,080	109,452	214,412
Cuba	36–50†	251,385	249,255	311,214[4]	257,864[4]	198,243	130,764	50,397	29,073
Japan[3]	32–40	195,546	254,254	342,884	400,679	85,700	29,394	33,194	47,500
Mexico	41–45	7,500	40,000	70,503	80,671	51,959	25,000	31,400	53,800
Chile	40–50	47,200	71,292	114,074	43,989	7,445	20,538	19,352	20,498
World total[1]		5,491,000	5,167,000	4,040,000	2,900,000	4,260,000	3,700,000	3,800,000	3,900,000

† Total world production figures include production of smaller producing countries not otherwise listed and estimates by the Bureau of Mines for countries not reporting.
[2] Preliminary figures.
[3] Estimate excludes Ukraine.
[4] Dry weight.
[5] Exports.

Furnace Coke, Connellsville

(net ton at oven)

Source: THE IRON AGE

	1929	1938	1939	1940	1941	1942
Jan.	$2.75	$4.00	$3.75	$4.20	$5.50	$6.13
Feb.	2.90	4.00	3.75	4.00	5.50	6.00
Mar.	2.98	4.00	3.75	4.00	5.52	6.00
Apr.	2.78	4.00	3.75	4.00	5.63	6.00
May	2.75	4.00	3.75	4.00	6.00	6.00
June	2.75	3.85	3.75	4.00	6.13	6.00
July	2.75	3.75	3.75	4.20	6.13	6.00
Aug.	2.73	3.75	3.75	4.63	6.13	6.00
Sept.	2.65	3.75	4.25	4.75	6.13	6.00
Oct.	2.65	3.75	4.90	4.75	6.13	6.00
Nov.	2.65	3.75	5.00	5.10	6.13	6.00
Dec.	2.63	3.75	5.00	5.38	6.13	6.00
Average	2.75	3.86	4.09	4.42	5.92	6.01

	1943*	1945*	1946	1947	1948	1949
Jan.	$6.00	$7.00	$7.50	$8.75	$12.50	$16.56
Feb.	6.25	7.00	7.50	8.88	12.50	15.25
Mar.	6.50	7.00	7.50	9.00	12.50	14.50
Apr.	6.50	7.00	7.50	9.60	12.50	14.50
May	6.50	7.15	7.50	10.50	12.50	14.38
June	6.50	7.50	7.50	10.50	12.70	14.25
July	6.50	7.50	8.50	11.40	13.88	14.25
Aug.	6.50	7.50	8.75	12.00	14.75	14.25
Sept.	6.50	7.50	8.75	12.00	15.00	14.25
Oct.	6.50	7.50	8.75	12.38	15.00	14.25
Nov.	6.50	7.50	8.75	12.50	15.00	14.20
Dec.	6.60	7.50	8.75	12.50	15.00	14.00
Average	6.45	7.30	8.10	10.83	13.63	14.58

* Price unchanged at $7.00 throughout 1944.

CURRENT QUOTATIONS

Current quotations on many of the commodities listed in this section are published in the regular weekly price pages. See index, p. 2, for page numbers of this week's price pages.

Foundry Coke, Connellsville

(net ton at oven)

Source: THE IRON AGE

	1929	1938	1939	1940	1941*	1943*
Jan.	$3.75	$5.00	$4.75	$5.50	$5.75	$6.88
Feb.	3.75	5.00	4.75	5.31	5.75	7.13
Mar.	3.75	5.00	4.75	5.25	5.85	7.38
Apr.	3.75	5.00	4.75	5.25	5.62	7.38
May	3.75	5.00	4.75	5.25	6.72	7.44
June	3.75	4.85	4.75	5.25	6.88	7.50
July	3.75	4.75	4.75	5.25	6.88	7.50
Aug.	3.75	4.75	4.75	5.25	6.88	7.50
Sept.	3.75	4.75	5.12	5.25	6.88	7.50
Oct.	3.75	4.75	5.65	5.25	6.88	7.50
Nov.	3.75	4.75	5.75	5.88	6.88	7.50
Dec.	3.50	4.75	5.75	5.75	6.88	7.50
Average	3.73	4.86	5.02	5.35	6.49	7.39

	1944	1945	1946	1947	1948	1949
Jan.	$8.06	$8.25	$9.00	$8.50	$14.00	$16.94
Feb.	8.25	8.25	9.00	9.38	14.00	16.75
Mar.	8.25	8.25	9.00	10.25	14.00	16.50
Apr.	8.25	8.25	9.00	10.65	14.00	16.50
May	8.25	8.47	9.00	11.25	14.00	16.38
June	8.25	9.00	9.00	11.25	16.00	16.25
July	8.25	9.00	9.68	12.75	16.50	16.13
Aug.	8.25	9.00	8.50	13.75	17.00	15.75
Sept.	8.25	9.00	8.50	13.75	17.00	15.75
Oct.	8.25	9.00	8.50	13.94	17.00	15.75
Nov.	8.25	9.00	8.50	14.00	17.00	15.75
Dec.	8.25	9.00	8.50	14.00	17.00	15.75
Average	8.24	8.71	8.85	11.96	15.62	16.18

* Price unchanged at $6.88 throughout 1942.

No. 2 Foundry Pig Iron at Buffalo

(per gross ton, at furnace)

Source: THE IRON AGE

	1929	1934	1936	1937	1938	1939
Jan.	$18.00	$17.50	$19.50	$21.00	$24.00	$21.00
Feb.	18.39	17.50	19.50	21.25	24.00	21.00
March	18.50	17.50	19.50	23.60	24.00	21.00
April	18.50	17.50	19.50	24.00	24.00	21.00
May	18.50	18.50	19.50	24.00	24.00	21.00
June	18.75	18.50	19.50	24.00	23.20	21.00
July	19.50	18.50	19.50	24.00	20.00	21.00
Aug.	19.50	18.50	19.50	24.00	20.00	21.00
Sept.	19.50	18.50	19.50	24.00	20.13	22.00
Oct.	19.50	18.50	19.50	24.00	20.88	23.00
Nov.	19.50	18.50	19.75	24.00	21.00	23.00
Dec.	19.50	18.50	20.50	24.00	21.00	23.00
Average	18.97	18.17	19.60	23.40	22.18	21.59

	1940*	1945*	1946	1947	1948	1949
Jan.	$23.00	$24.00	$25.75	$30.50	$40.37	$47.26
Feb.	23.00	24.50	25.75	30.50	42.12	47.00
March	23.00	25.00	26.13	32.38	42.45	47.00
April	23.00	25.00	26.50	33.00	41.19	46.75
May	23.00	25.00	26.50	33.00	41.37	46.50
June	23.00	25.00	26.50	33.00	41.44	46.50
July	23.00	25.00	26.50	34.20	42.08	46.50
Aug.	23.00	25.00	26.50	37.37	44.90	46.50
Sept.	23.00	25.00	26.50	37.18	45.87	46.50
Oct.	23.00	25.30	26.50	37.00	47.12	46.50
Nov.	23.00	25.75	26.50	37.75	47.50	46.50
Dec.	23.40	25.75	30.10	38.00	47.50	43.50
Average	23.03	25.02	27.64	34.49	43.85	46.67

* Price unchanged at $24.00 from 1941 through 1944.

Shipments of Beneficiated Iron Ore

(long tons)

Source: U. S. Bureau of Mines

1930	8,973,888
1931	4,676,364
1932	407,486
1933	3,555,892
1934	4,145,590
1935	6,066,601
1936	9,658,699
1937	12,350,136
1938	4,836,435
1939	9,425,809
1940	19,925,741
1941	19,376,120
1942	23,104,945
1943	20,117,685
1944	20,303,422
1945	19,586,782
1946	15,588,763
1947	21,407,760
1948	24,176,014
1949	*

* Not available.

Lake Superior Iron Ores

Average Analyses, Combined U. S. Ranges and Grades

Source: Lake Superior Iron Ore Assn.

Year	Analyses, Pct Iron, Natural	Phos.	Silica	Mang.	Moisture
1948	50.49	0.093	9.30	0.76	11.35
1947	50.91	0.093	9.09	0.75	11.28
1946	51.32	0.087	8.83	0.74	11.22
1945	51.69	0.089	8.52	0.72	10.96
1944	51.72	0.088	8.42	0.74	11.02
1943	51.58	0.091	8.32	0.82	11.06
1942	51.65	0.089	8.21	0.79	10.98
1941	51.83	0.085	8.18	0.78	11.01
1940	52.09	0.085	8.00	0.77	10.93
1939	51.75	0.085	8.27	0.76	10.73
1938	51.90	0.089	8.25	0.81	10.13
1937	51.53	0.091	8.27	0.82	11.31
1936	51.45	0.091	8.62	0.81	10.92
1935	51.44	0.093	8.93	0.79	10.75
1934	51.49	0.087	8.93	0.76	10.66
1933	51.85	0.090	8.96	0.71	10.47
1932	52.16	0.099	9.05	0.68	9.92
1931	51.53	0.087	8.60	0.80	10.84
1930	51.33	0.095	8.70	0.82	10.92

(Continued on Page 296)

U. S. COKE PRODUCTION

Net Tons

Source: U. S. Bureau of Mines

	Beehive	By-Product Merchant Plants	By-Product Furnace Plants	By-Product Total	Total
1928	4,492,803	10,068,771	38,244,254	48,313,025	52,805,828
1929	6,472,019	12,187,439	41,224,387	53,411,826	59,883,845
1930	2,776,316	11,989,651	33,206,054	45,195,705	47,972,021
1931	1,128,337	11,338,309	20,817,240	32,355,549	33,483,886
1932	651,888	9,762,471	11,374,371	21,136,842	21,788,730
1933	911,058	10,533,968	16,144,168	26,678,136	27,589,194
1934	1,028,765	11,550,961	19,241,850	30,792,811	31,821,576
1935	917,206	11,189,792	23,034,261	34,224,053	35,141,261
1936	1,706,063	12,493,032	32,076,089	44,569,121	46,275,184
1937	3,164,721	13,076,539	36,134,209	49,210,748	52,375,469
1938	837,412	10,989,525	20,668,878	31,658,403	32,495,815
1939	1,444,328	11,070,506	31,811,807	42,882,313	44,326,641
1940	3,057,825	12,549,132	41,465,177	54,014,309	57,072,134
1941	6,704,156	13,494,509	44,967,913	58,462,422	65,166,578
1942	8,274,035	15,134,866	47,160,043	62,294,909	70,568,944
1943	7,933,387	14,750,033	48,992,643	63,742,676	71,676,063
1944	6,973,022	14,144,951	52,919,844	67,064,795	74,037,817
1945	5,213,893	13,399,116	48,695,172	62,094,288	67,308,181
1946	4,568,401	12,388,485	41,540,962	53,929,447	58,497,848
1947	6,687,301	13,897,699	52,860,850	66,758,549	73,445,850
1948	6,577,571	13,332,499	54,951,858	68,284,357	74,861,928
1949[1]	3,300,000	12,150,000	48,950,000	61,100,000	64,400,000

[1] Estimate by THE IRON AGE.

Ore Beneficiation Facilities

Magnetic Taconite and Magnetite

Source: The Iron Age

Bethlehem Steel Co., Bethlehem
(pelletizing)

Butler Bros. Co., (M. A. Hanna Co.), Cooley, Minn.
(testing laboratory, magnetic taconite)

Cleveland Cliffs Iron Co., Colerain, Minn.
(testing laboratory, magnetic taconite)

Erie Mining Co., Aurora, Minn.
(laboratory and pilot plant, magnetic taconite)

M. A. Hanna Co., Star Lake, N. Y.
(magnetite)

Jones & Laughlin Steel Corp., Ishpeming, Mich.
(testing laboratory)

Jones & Laughlin Steel Corp., Benson, N. Y.
(magnetite)

Minnesota Mines Experiment Station, Minneapolis
(magnetic taconite)

National Lead Co., Tahawus, N. Y.
(magnetite)

Oliver Iron Mining Co., Duluth
(testing laboratory)

Republic Steel Corp., Port Henry, N. Y.
(magnetite)

Reserve Mining Co., Ashland, Ky.
(pelletizing)

Addresses and Officers of Technical Societies and Trade Associations

American Refractories Institute
Railway Exchange Bldg., St. Louis 1
Pres.: W. J. Westphalen

American Ceramics Society—Refractories Div
2525 N. High St., Columbus 2, Ohio
Pres.: Hobart M. Kraner
Gen. Secy.: Charles S. Pearce

Blast Furnace, Coke Oven and Raw Materials Committee
Branch of Iron and Steel Div., AIME
Chair.: T. F. Plimpton
Secy.: W. S. Unger,
134 Montour Ave., Johnstown, Pa.

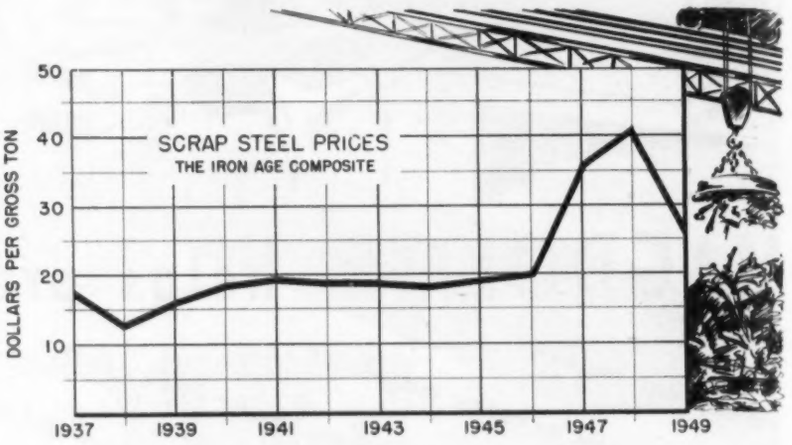
American Coke & Coal Chemicals Institute
729 15th, NW., Washington
Pres: P. S. Savage
Exec. Sec'y: Samuel Weiss

Eastern States Blast Furnace & Coke Oven Assn.
Pres.: J. J. Cavett
Sec'y-Treas.: F. M. Thatcher
c/o Clairton Works
Carnegie-Illinois Steel Corp., Pittsburgh

Institute of Scrap Iron & Steel, Inc.
1346 Connecticut Ave. N.W., Washington 6
Pres. Edward L. Solomon
Exec. Vice Pres.: Edwin C. Barringer

Lake Superior Iron Ore Assn.
1170 Hanna Bldg. Cleveland 15
Pres.: Donald B. Gillies
Vice Pres.: M. D. Harbaugh

Mining, Geology & Geophysics Div., AIME
Chair.: P. J. Shenon
Secy.: James K. Richardson
918 Kerns Bldg. Salt Lake City 1



SHIPMENTS OF MANGANIFEROUS ORES BY U. S. PRODUCERS

(short tons)

Source: U. S. Bureau of Mines

Year	Metallurgical Ore: Manganese Ore (35 Pct or more Mn)	Ferruginous Manganese Ore (10 to 35 Pct Mn)	Manganiferous Iron Ore (5 to 10 Pct Mn)	Manganiferous Zinc Residuum	Battery Ore (35 Pct or more Mn)
1939	20,810	268,289	526,067	144,747	8,699
1940	30,416	358,406	914,526	172,990	10,383
1941	73,852	512,162	918,725	282,049	11,399
1942	177,966	265,663	1,500,613	292,051	15,410
1943	195,096	468,882	1,251,275	270,328	*12,704
1944	241,170	296,981	1,190,476	247,402	6,224
1945	174,295	114,327	1,408,527	224,331	8,042
1946	134,381	100,402	1,070,694	205,786	8,295
1947	125,428	128,562	1,044,961	227,547	6,189
1948	119,826	139,580	1,198,523	291,383	10,845

* Includes 2,731 tons containing 27 pct Mn.

U. S. Coal Production (short tons)

Source: U. S. Bureau of Mines

	Bituminous	Anthracite
1930	467,526,299	69,384,837
1931	382,089,396	59,645,652
1932	309,709,872	49,855,221
1933	333,630,533	49,541,344
1934	359,368,022	57,168,291
1935	372,373,122	52,158,783
1936	439,087,903	54,579,535
1937	445,531,449	51,586,433
1938	348,544,764	46,099,027
1939	394,855,325	51,487,377
1940	460,771,500	51,484,640
1941	514,149,245	56,368,267
1942	582,692,937	60,327,729
1943	590,177,069	60,643,620
1944	619,576,240	63,701,363
1945	577,617,327	54,933,909
1946	533,922,068	60,506,873
1947	630,623,722	57,190,009
1948	599,518,229	57,139,948
1949	[1]394,988,000	[2]39,973,000

[1] To Dec. 3.
[2] 11 months.

Spiegeleisen, Imports for Consumption (short tons)

Source: U. S. Dept. of Commerce

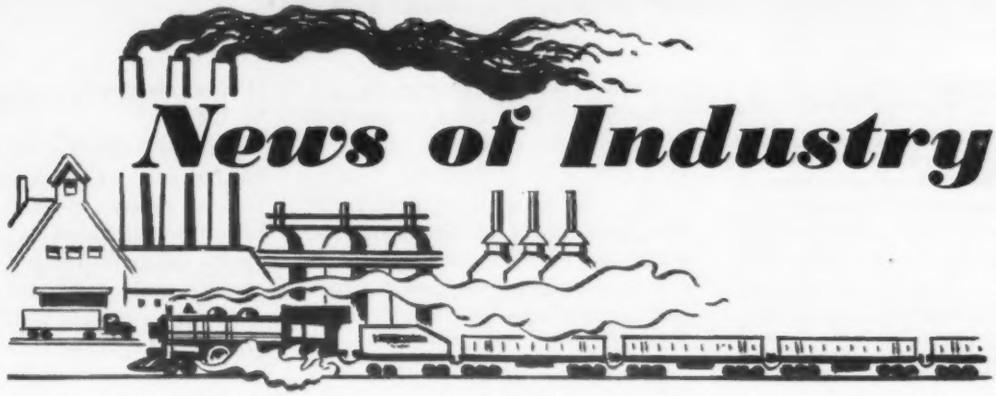
1930	15,015	1940	17,455
1931	10,820	1941	4,741
1932	9,368	1942	1,990
1933	29,430	1943	3,254
1934	23,726	1944	3,761
1935	36,270	1945	3,148
1936	58,252	1946	360
1937	15,862	1947	none
1938	19,318	1948	none
1939	42,856	1949	none

Iron Ore Imports (long tons)

Source: U. S. Bureau of Mines

1932	582,498
1933	861,153
1934	1,427,521
1935	1,492,435
1936	2,232,229
1937	2,442,099
1938	2,122,455
1939	2,412,515
1940	2,479,326
1941	1,707,811
1942	731,352
1943	399,117
1944	463,532
1945	1,197,925
1946	2,754,216
1947	4,903,484
1948	6,108,754
1949	*7,918,000

* Estimate by U. S. Bureau of Mines.



N. E. Not Worried

BOSTON—John E. Kelly, consultant to the New England Council's steel committee, said last week that U. S. Steel's acquisition of an Eastern mill site proves the case for an East Coast mill. It does not lessen the need for a New England mill, he claimed, because the proposed site lies beyond the 200 mile radius within which a New England mill will serve a 7 million ton annual carbon steel demand.

Reynolds Buys Remaining Government Aluminum Plants

Only 5 years ago many doubted country could absorb capacity.

New York—Virtually the last of the government's salable primary aluminum plants have now been sold not quite 5 years after industry circles scoffed at a suggestion that they could be put to use. Many well-informed observers were then of the opinion that the additional capacity represented by the government plants could not be absorbed by the market, R. S. Reynolds did not agree.

Reynolds Aluminum Co., a subsidiary of Reynolds Metals Co. has bought four aluminum plants from General Services Administration at a total cost of $50,081,958, payable over a 25-year period. These plants include the Hurricane Creek, Ark., alumina plant together with an adjacent sinter plant that permits the use of lower

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U. S. Steel Eastern Mill Moves a Step Closer

Seaboard site bought near Philadelphia would let plant draw on Venezuelan iron ore now being developed and hurdle freight barriers in reaching eastern market.

Pittsburgh—An Eastern mill for U. S. Steel moved a step closer last week with the announcement that Carnegie-Illinois Steel Corp. is acquiring 3800 acres of land near Trenton, N. J., for possible future use as a site for an Eastern seaboard steel mill. The report of the transaction was one of the last official statements of Charles R. Cox as president of Carnegie-Illinois before he left to become head of Kennecott Copper on Jan. 1. Building of a mill has not yet been authorized, Mr. Cox said.

The land is on the Delaware River in Falls Twp., Pa., about 30 miles northeast of Philadelphia and just across the river from Trenton. A year ago the Pennsylvania R. R. announced acquisition of some 4000 acres of land in this location "for industrial sites" (THE IRON AGE, Jan. 27, 1949). At that time U. S. Steel executives Benjamin F. Fairless and Irving S. Olds were dinner guests of Martin W. Clement, president of the Pennsylvania, in Philadelphia.

Final Plans Held Up

Definite U. S. Steel plans have been held up for two reasons: (1) Ore; and (2) f.o.b. mill selling. The ore is now in sight; it must be imported to offset the higher cost of bringing coal and other raw materials to the East. F.o.b. mill selling is here to stay; freight absorption may again be legalized but freight rates have risen by so much in the past few years that absorption of freight to reach eastern markets from Pittsburgh is not economical.

Freight Rates Too High

It could be as long as 10 years before the mill is rolling steel; it is unlikely to be ready in less than five or six. Main reason for the delay is the need for foreign iron ore. It could come initially from Labrador but Venezuela is the logical source and it will take time to develop that property. Several hundred million tons of high-grade Venezuelan ore have already been proved in by U. S. Steel (THE IRON AGE, Dec. 30, 1948, p. 71).

Even if freight absorption is

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Employment Reverses Trend

Washington—A less than seasonal drop in contract construction employment, some 65,000, brought the number of workers in the industry to 2,245,000. Forecasts for 1950 estimate that the figure may reach 2,400,000 at next summer peak period.

U. S. Steel Buys

Continued from Page 329

legalized, the cost of absorbing it on most products to Philadelphia, New Jersey and New England leaves U. S. Steel with only two alternatives: (1) Write off the market as impractical to reach or (2) build an Eastern mill to serve it. The cost will be high but it may be decided to lay out the money rather than lose most of the market.

It now costs the steel user in Newark, N. J., or New York $4.00 more a ton to buy steel from Pittsburgh as against Sparrows Point, Md. In New Haven he would pay $3.40 a ton more. In Philadelphia it is $5.00 a ton cheaper to deal with Bethlehem Steel at Sparrows Point rather than Pittsburgh. In a buyers' market these premiums don't go, and if steel companies absorb the freight to get the business their profit on many items will either be wiped out or sharply reduced. Moreover, these areas could be reached from Trenton for less than they can from Sparrows Point. The market is worth going after. In the Philadelphia area in 1948 the metalworking industry alone bought more than a million tons of flat-rolled steel products.

It can be assumed that if U. S. Steel goes through with its Eastern seaboard mill it will retire an equivalent amount of tonnage in some less efficient plant or less lucrative market.

The Delaware River has been dredged to permit use by ocean-going vessels with up to 25-ft draft as far as Trenton though some redredging will be required further down the river between Trenton and Burlington, N. J.

May Ban Data Exports

Washington — The Commerce Dept. is prepared to impose a tight ban on exports of unclassified technical data but such action will be taken only in "exceptional" cases. Officials warned that they were prepared to revise, suspend, or revoke general export licenses where it might be deemed "advisable" to do so. The department said it would officially notify exporters in cases where exports of technical data should be prohibited.

The new prohibition applies to advanced technical developments, technology, information and know-how, including prototypes and special installations.

Studebaker Sells Empire For a Reported $5 Million

Mansfield, Ohio—In an agreement signed Dec. 29 Empire Steel Co., a subsidiary of Studebaker Corp., South Bend, Ind., was sold to Rema Co. of Mansfield and Dover, Ohio, for a reported $5 million.

Rema Co., a temporary organization formed to purchase Empire Steel will go out of existence Jan. 1 when the enterprise will be known as Empire Steel Corp. Studebaker bought the plant in 1948 for $7,430,000.

Head of the new corporation is Don W. Frease, present president of Empire and vice-president of Reeves Steel & Mfg. Co., Dover. He will continue as president of Empire. Vice-president is S. J. Reeves, president of Reeves Steel.

Plans call for a $10 million expansion program including a continuous strip mill possibly financed by RFC.

Annual capacity of Empire is 350,000 tons of ingots and 120,000 tons of sheets. Reeves Steel sells hot-rolled annealed and galvanized sheets and fabricated items including pails, tubs and gutters. It depends on outside sources of supply for sheet bars. It is likely that in the event a strip mill is installed at Empire, hot bands would be sent to Reeves for further processing.

Contributed by Clem Caditz, president, Northern Metal Products Co., Chicago.

Aluminum Plants

Continued from Page 329

grade bauxite; the Jones Mills, Ark., and Troutdale, Ore., reduction plants; and the McCook, Ill., sheet and plate mill.

During the year Kaiser Aluminum & Chemical Corp. bought a reduction plant and a rolling mill at Spokane, Wash., an alumina plant at Baton Rouge, La., and a rod and wire mill at Newark, Ohio, for a total cost of $40,500,000.

Early this year Alcoa bought the government-built plant at Massena, N. Y., adjacent to its own plant from WAA for $5 million in addition to the release of all its alloy patent rights to the industry. The sales has been held in suspension by WAA pending determination of the monopoly charge against the company being tested in the current lawsuit. In the meantime the plant is not operating and Alcoa is merely acting as custodian.

The only aluminum plants now remaining in government hands are those at which only high cost power is available. Most of these have been cannibalized. The equipment at the Burlington, N. J., plant has been shipped to Point Comfort, Tex., to equip the new Alcoa reduction plant that will go into production early next year. The Riverbank and Torrance plants, Calif., had a fume problem as well as high cost power, and have been cannibalized. The Maspeth, N. Y., plant also was served by high cost power.

Resume Your Reading on Page 329

FTC Member Hits Steel Industry Suit-Ending Idea

Edwards sees return to basing point system in proposed order.

Washington—The Federal Trade Commission has before it this week the charge of one of its staff members that the steel industry's proposal to terminate price-fixing charges (THE IRON AGE, Dec. 8, p. 48) would probably result in re-establishment of the basing point system.

Corwin Edwards, director of the FTC's Bureau of Industrial Economics, declared in a memorandum to the commissioners that "nothing in the proposed order would prevent a respondent from reestablishing exactly the basing point system, which, according to the commission's complaint, developed in conspiracy and was the expression of conspiracy."

Asks Price-Shaking Order

The commissioners are expected to act sometime after mid-January on an industry proposal, endorsed by Assistant Chief Trial Counsel Lynn Paulson, that the 2-year-old price-fixing complaint be terminated. Both Edwards and Chief Trial Counsel Richard P. Whitely are opposed to any settlement based ou the proposed order now before the commission.

Mr. Edwards declared in his memorandum that any proposed settlement with the 101 steel-company respondents named in the FTC complaint should be based on an order: (1) "Sufficient to shake existing prices out of the general pattern that prevailed under the formula established by the conspiracy; and (2) also sufficient to prevent reestablishment of the old pattern or of a very similar pattern."

Factory Orders Return to Normal

Washington—New factory orders have about equaled shipments in recent months, thus establishing a more nearly normal ratio of sales to unfilled orders, according to the Office of Business Economics.

INDUSTRIAL SHORTS

PROMOTING — Atlas Steels, Ltd., Welland, Ontario, has appointed, for a 3-year period, A. Earle Higgins and the CHARLES FRANCIS PRESS, New York, to direct its promotional campaign on the uses and fabrication of stainless steel throughout Canada.

HAPPY ANNIVERSARY — With the advent of 1950, DRIVER-HARRIS CO., Harrison, N. J., completes 50 years in business. They are manufacturers of special nickel-chrome alloys for electrical, mechanical and chemical uses.

MERGES — The integration of two scientific laboratories, the UNITED STATES TESTING CO., INC., Hoboken, N. J., and the ESSELEN RESEARCH CORP., Boston, has been announced. Esselen will become the Esselen Research Div. of the United States Testing Co., Inc., and will continue its operations in Boston.

METAL RESEARCH — Establishment of a new research and consulting firm to serve the metal industry, METAL RESEARCH ASSOCIATES, INC., Cleveland, has been announced. Dr. George Sachs, founder-director of the Laboratory for Mechanical Metallurgy at Case Institute of Technology, Cleveland, will head the firm.

EXPANDING — The establishment of three new regional sales offices in Chicago, San Francisco and New York as part of American Kitchens expanding sales plan has been announced by the American Central Div., AVCO MFG. CORP., Connersville, Ind.

NEW MARKET — The Union Twist Drill Co., Athol, Mass., manufacturers of carbide, carbon and high speed steel cutting tools, have appointed MACHINISTS TOOLS, INC., Buffalo, as a distributor in Buffalo and surrounding territory.

NEW ADDITION — Construction has been started by CECO STEEL PRODUCTS CORP. on a new addition to its Plant #1 at Chicago. Main purpose of the addition is to provide warehouse facilities for their building products made in off season months, thus stabilizing employment.

CORRECTION—The item in the Dec. 15 issue under "Wire Rep" should have read—John A. Roebling's Sons Co., Roebling, N. J., has announced the appointment of INDUSTRIAL WIRE PRODUCTS CORP., Los Angeles, as its agent for insect wire screening, galvanized hardware cloth and industrial wire cloth for southern California, Arizona and New Mexico.

PRODUCTS SHOW—Manufacturers and industrial distributors will display their 1950 lines at the 16th annual Products Show of the PURCHASING AGENTS ASSN. OF CHICAGO at the Hotel Sherman on Feb. 14, 15 and 16.

HEADS SAE—James C. Zeder, chairman of the engineering board of Chrysler Corp., Detroit, has been elected president of the SOCIETY OF AUTOMOTIVE ENGINEERS for 1950. Raymond D. Kelly has been named vice-president, air transport activity, and Harold D. Hoekstra, vice-president, aircraft activity.

MORE SPACE—Another addition to the manufacturing plant at Seattle of the FENTRON STEEL WORKS is being made. It will add approximately one-fourth more additional working space.

SALES AGENT—It his been announced that KAISER ALUMINUM & CHEMICAL SALES, INC., is acting as national sales agent for Benson aluminum drums for the chemical industry under an agreement with the Benson Mfg. Co., Kansas City.

Viewing the News from

The ECONOMIC SIDE

By JOSEPH STAGG LAWRENCE

"An Opinion That Carries Weight"

THIS is the time of the year when business forecasts are a dime a dozen. The bank president issues a release which views the next 12 months hopefully. The public, of course, does not have a copy of the pep talk he gave his credit men at the year end. The rosy reading of the future issued to the press and the instructions to the bank's lending officers may have little in common. It is a truism in the business world that bad news or a sober view of the future is poor publicity.

Year-end statements are invariably cheerful for the simple reason that any other kind of a statement is inadvisable. Economic prognosis is far removed from a science, and the fellow who rocks the boat is generally considered a sourpuss or a frustrate. His dim view of the future is a confession of "personal inadequacy" and can't possibly be the result of a more accurate diagnosis than that offered by his more cheerful fellow-soothsayers.

Therefore, when a prophet climbs to the topmost story and tells his fellow-citizens that the coming year is promising, he gets credit for a healthy (constructive is the word) disposition. If his reading of the tea leaves proves approximately accurate, he gets a certain measure of polite acclaim. This whole business of delphic utterance has a faintly disreputable odor.

However, there are forms of forecasting which must be taken seriously. When the responsible officer of a big food company, operating on a national scale, is asked by his board of directors to present a budget for the company year based on anticipated food prices and consumption levels, the chips are down. His cannot be a casual horseback opinion of the future.

These private, responsible prognoses are usually carefully-guarded institutional secrets. If they can be obtained by merely buying a newspaper, there is no point in paying $25,000 a year to a high-powered, technically trained employee.

This brings us to a practical, responsible estimate of the future which has enjoyed little respect. We refer to the fellow who borrows a hundred shares of stock in the X corporation and sells them at the prevailing market price, i.e., the short seller. At some time in the future this short seller must buy these shares back in the open market and return them to the lender. This involves considerable risk, for if he is wrong he must pay a higher price for the stock he returns than he received when he sold the borrowed stock.

Although partly explained by sales for arbitrage or tax advantage, it is difficult to ignore the present size of the short position in the New York stock market. As of Dec. 15, 2,267,481 shares of stock were out on short accounts. This is the largest short position since 1932. The boys who hold these positions, known as short traders, are coldly intelligent professionals who now have more chips on the line than at any time during the last 17 years. You cannot wash out the meaning of this fact by charging the short sellers with antisocial bias or a prejudice against Harry Truman. If they are wrong, they will pay—heavily.

Construction Steel Awards

Fabricated steel awards this week included the following:

3000 Tons, Bokaro, India, steam powerhouse for Damador Valley Corp., to Bethlehem Steel Export Corp., New York.

3000 Tons, Calumet City, Ill. Little Calumet River bridge to American Bridge Co., Pittsburgh.

695 Tons, Cook County, Ill., highway bridge 42VF-12 to American Bridge Co., Pittsburgh.

630 Tons, Leominster, Mass., four bridges, Bayer and Mingolla Construction Co., Worcester, Mass., low bidder.

415 Tons, Cook County, Ill., highway bridge 42VF-10 to American Bridge Co., Pittsburgh.

400 Tons, Fairmont, W. Va., warehouse, Neighborgall Construction Co., Huntington, W. Va., low bidder.

320 Tons, Chicago, Eden Parkway Bridge to American Bridge Co., Pittsburgh.

290 Tons, Lebanon County, Pa., Pennsylvania Dept. of Highways, to Belmont Iron Co., Philadelphia.

260 Tons, Ravina, Ill., band stand to American Bridge Co., Pittsburgh.

250 Tons, Union County, N. J., New Jersey Turnpike Commission, Poirer & McLean, New York, low bidder.

230 Tons, Cook County, Ill., state highway bridge section O2031HF to American Bridge Co., Pittsburgh.

210 Tons, New Haven, Conn., 3-span continuous rolled beam bridge, on relocation of U. S. Route 1. C. W. Blakeslee & Sons, New Haven, Conn., low bidder.

175 Tons, Bronx, N. Y., apartment house at 201 St. & Perry Ave., to Grand Iron Works, Inc., New York.

150 Tons, Glastonbury, Conn., 2-span continuous rolled beam bridge and bituminous macadam approaches. Mariani Construction Co., New Haven, Conn., low bidder.

Fabricated steel inquiries this week included the following:

555 Tons, Carbon County, Pa., construction of continuous plate girder and concrete deck I-beam bridge, Pennsylvania Highway and Bridge Authority. Bids close Jan. 20.

500 Tons, Washington, D. C., renovation of the White House, through John McShain, Philadelphia, due Jan. 6.

140 Tons, Monmouth & Ocean Counties, N. J., approaches to Manasquan River bridge, Route 3540b), due Jan. 12.

Reinforcing bar awards this week included the following:

1095 Tons, Eauclair, Wis., building for U. S. Rubber Co., split evenly in lots of 365 tons each to Concrete Steel Co., Bethlehem, and U. S. Steel Supply Co., Chicago.

870 Tons, Allegheny County, Pa., Tarentum Bridge to J & L, Pittsburgh.

415 Tons, Allegheny County, Pa., Rankin bridge approaches to Electric Welding Co., Pittsburgh.

315 Tons, Newport, Ky., flood wall to U. S. Steel Supply Co., Chicago.

275 Tons, Westmoreland County, Pa., bridge superstructure to Electric Welding Co., Pittsburgh.

250 Tons, Westmoreland County, Pa., Pennsylvania Turnpike to Truscon Steel Co., Cleveland.

245 Tons, Leominster, Mass., bituminous macadam road, including two steel stringer bridges, one deck girder bridge and one pedestrian overpass. Bayer and Mingolla Construction Co., Worcester, Mass., low bidder.

230 Tons, Allegheny County, Pa., Rankin bridge to Electric Welding Co., Pittsburgh.

210 Tons, Bedford, Pa., Bedford Memorial Hospital, to U. S. Steel Supply Co., Chicago.

180 Tons, De Kalb, Ill., Northern Illinois State Teachers College, to J. T. Ryerson & Son, Chicago.

140 Tons, Milwaukee, Marquette University to Concrete Steel Co., Bethlehem.

Briefs and Bulletins

filing charges—The nation's soft coal operators are going to charge John L. Lewis with unfair labor practices. Northern and Western and Southern operators announced they will file charges before the National Labor Relations Board in an effort to break Lewis' hold on the industry, which has been working only three days a week at the UMW leader's order—two days during the holiday season. At the same time the operators advised Mr. Lewis the industry was united against granting anything more than is in the expired 1948 contract. Mr. Lewis is seeking a 95-cent-a-day pay raise and an increase in the per-ton royalty to support the UMW welfare fund, now virtually bankrupt.

wide sheets—Consumers of extra-wide cold-rolled sheets will find their costs increased as much as $17 per ton, including base and extras, under the revised price schedule. This applies only in 18 gage in widths of over 72 to 76 in. In 20 gage, same widths, the increase amounts to $8. In widths over 76 in. to 82 in., the increases range from $5 to $6 in 18 gage, and from $8 to $9 in 20 gage. The heavy tonnages are in the over 76 in. to 82 in. range. Base price increase is $2 per ton.

strip tease—Narrow strip producers are on the horns of a dilemma in establishing new base price and extra schedules. If they follow the strip base price and extra increases of the integrated mills, they are sure to lose a portion of their market as customers redesign their products to take advantage of the lower steel costs in wide sheet extras. At the same time, their higher labor and other costs warrant the increases of the new strip base and extras.

silicon steel—Some silicon steel producers are not too happy about the long-overdue price action taken by U. S. Steel Corp. The revisions were welcome, of course, but the feeling is that production costs would have justified even more drastic increases. This is particularly true, it is said, with regard to the transformer grades. Demand for silicon sheets continues strong. One producer is booked through April.

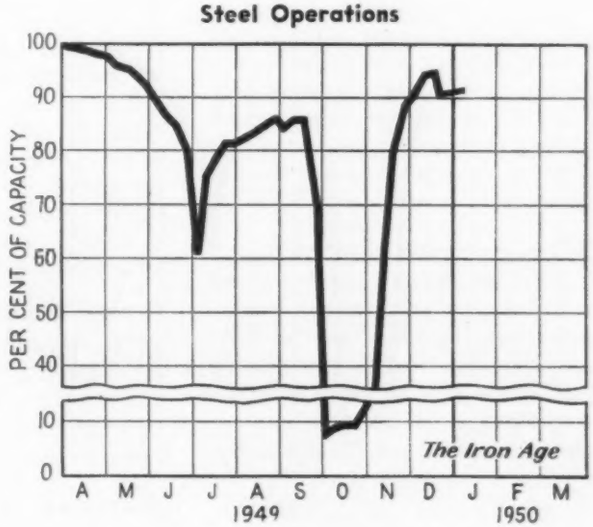
c-f bar price—American Steel & Wire Co. spokesman last week denied that the company had announced a new price of $4.15 per 100 lb as reported on this page last week. It was said late last week that the price remained unchanged at $4.00 per 100 lb.

warehouse prices—Eastern warehouses have not announced new steel prices and it may be some time before the new schedules are put into effect. The problem in working out increased prices is complicated by the drastic changes in extra charges announced by the mills. Since the extras are merely passed along to the consumer by jobbers, the warehouse spread is decreased on a percentage basis. Also information on the extras of one major mill is not available yet.

c-d alloy bars—Wyckoff Steel Co. announced new base prices of cold-drawn alloy bars of $4.90 per 100 lb at Ambridge, Pa., and Chicago, and $5.20 per 100 lb at Newark, effective 12:01 a.m. Dec. 30. This is an increase of $5 per ton. There is no change in size extras for rounds, hexagons and squares, and only slight changes in few brackets involving flats, as well as other processing extras. Quantity extras have been revised in brackets under 6000 lb.

tungsten—Production of tungsten concentrates in Korea is expected to be increased by about 1200 metric tons annually as the result of U. S. financing. The Economic Cooperation Administration has earmarked $556,000 for the installation of ore crushing, grinding, and classifying equipment at Sandong, Korea.

Steel Operations



District Operating Rates—Per Cent of Capacity

Week of	Pittsburgh	Chicago	Youngstown	Philadelphia	Cleveland	Buffalo	Wheeling	South	Detroit	West	Ohio River	St. Louis	East	Aggregate
December 25	95.5*	96.5*	84.0*	75.0	102.0*	103.5	101.0	101.0	90.0*	79.5	82.0*	81.0	89.5	90.0*
January 1	98.0	96.0	84.0	75.0	99.0	103.5	102.5	101.0	97.0	77.0	88.0	89.5	96.0	91.0**

* Revised. ** Tentative.

Nonferrous METALS OUTLOOK

Market Activities

by John Anthony

Metals strong at year end . . . Spread in zinc price expected to hold . . . Copper reaches 111,000 tons . . . Tin price down ½¢.

New York — Increased buying pressure was having an important effect on the market last week.

Zinc was still being offered to the market late last week at 9.75¢ by several sellers. But other producers had advanced their price ¼¢ to 10.00¢ East St. Louis and were making sales at that price and on an average price basis. Observers believe that the spread in the market may continue for a time. If buying continues active it is expected that the price will soon be stabilized at the higher level.

Strength in Zinc Market

The immediate cause of the strong zinc market is believed to have been the news that the British Ministry had contracted to buy 10,000 tons of Prime Western for delivery in the first quarter on an average price basis. Coupled with the active buying of Prime Western by galvanizers, the 9000-ton inventory reduction in November, and the continuing strike at Palmerton, there was a good basis for the price advance. At present, supply is rather spotty with the heaviest buying pressure on Special High Grade and Prime Western. Many buyers who have been unable to get Special High Grade have had to take the regular high grade in its place.

The price of tin dropped another ½¢ on Dec. 29 when RFC announced a price of 77.50¢. The tin market is very quiet. Transactions are often concluded after negotiations on the basis of an offer by the buyer.

Copper Buying Active

The demand for copper is still very heavy. Observers estimate that copper sales in the month of December may reach 95,000 tons. Nearby business could not be placed. Sales for shipment in December had reached 104,000 tons last week. With the carryover from November, the total amounts to 111,000 tons for December delivery.

Andrew Fletcher, president, St. Joseph Lead Co., has estimated that domestic mine production of lead in 1949 will reach 400,000 tons, and scrap lead recovery will be about 380,000 tons. Lead imports from 21 nations is estimated at 400,000 tons last year, a peacetime record.

C. Donald Dallas, chairman, Revere Copper & Brass, Inc., has estimated domestic copper production in 1949 at 896,000 tons including scrap. Deliveries of copper to fabricators are estimated at 1,048,000 tons—to which can be added 170,000 tons for the stockpile, to make an effective copper demand for the year of 1,218,000 tons.

NONFERROUS METALS PRICES

	Dec. 28	Dec. 29	Dec. 30	Dec. 31	Jan. 3
Copper, electro, Conn.	18.50	18.50	18.50	18.50	18.50
Copper, Lake, Conn.	18.625	18.625	18.625	18.625	18.625
Tin, Straits, New York	78.00	77.50	77.50	77.50	77.50
Zinc, East St. Louis	9.75-10.00	9.75-10.00	9.75-10.00	9.75-10.00	9.75-10.00
Lead, St. Louis	11.80	11.80	11.80	11.80	11.80

Note: Quotations are going prices.

MONTHLY AVERAGE PRICES

The average prices of the major nonferrous metals in December based on quotations appearing in THE IRON AGE, were as follows:

	Cents Per Pound
Electrolytic copper, Conn. Valley	18.50
Lake copper, Conn. Valley	18.625
Straits tin, New York	79.058
Zinc, East St. Louis	9.75
Zinc, New York	10.47
Lead, St. Louis	11.80
Lead, New York	12.00

Mill Products

Aluminum

(Base prices, cents per pound, base 30,000 lb, f.o.b. shipping point, freight allowed)

Flat Sheet: 0.188 in., 2S, 3S, 26.9¢; 4S, 61S-O, 28.8¢; 52S, 30.9¢; 24S-O, 24S-OAL, 29.8¢; 75S-O, 75S-OAL, 36.3¢; 0.081 in., 2S, 3S, 27.9¢; 4S, 61S-O, 30.2¢; 52S, 32.3¢; 24S-O, 24S-OAL, 30.9¢; 75S-O, 75S-OAL, 38¢; 0.032 in., 2S, 3S, 29.5¢; 4S, 61S-O, 33.5¢; 52S, 36.2¢; 24S-O, 24S-OAL, 37.9¢; 75S-O, 75S-OAL, 47.6¢.

Plate: ¼ in. and heavier: 2S, 3S, F, 23.8¢; 4S-F, 26¢; 52S-F, 27.1¢; 61S-O, 26.6¢; 24S-F, 24S-FAL, 27.1¢; 75S-F, 75S-FAL, 33.9¢.

Extruded Solid Shapes: Shape factors 1 to 4, 35.6¢ to 64¢; 11 to 13, 34.6¢ to 76¢; 23 to 25 36.7¢ to $1.05; 35 to 37, 44¢ to $1.53; 47 to 49, 63.5¢ to $2.20.

Rod, Rolled: 1.5 to 4.5 in., 2S-F, 3S-F, 24¢ to 30.5¢; Cold-finished, 0.375 to 3 in., 2S, 3S, 36.5¢ to 32¢.

Screw Machine Stock: Drawn, ⅛ to 11/32 in., 11S-T3, R317-T4, 49¢ to 38¢; cold-finished, ⅜ to 1½ in., 11S-T3, 37.5¢ to 35.5¢; ⅜ to 2 in., R317-T4, 37.5¢ to 34.5¢; rolled, 1 9/16 to 3 in., 11S-T3, 35.5¢ to 32.5¢; 2¼ to 3⅜ in., R217-T4, 33.5¢ to 32.5¢. Base 5000 lb.

Drawn Wire: Coiled, 0.051 to 0.374 in.: 2S, 36¢ to 26.5¢; 52S, 44¢ to 32¢; 56S, 47¢ to 38.5¢; 17S-T4, 50¢ to 34.5¢; 61S-T4, 44.5¢ to 34¢; 75S-T-6, 76¢ to 55¢.

Magnesium

(Cents per lb, f.o.b. mill, freight allowed Base quantity 30,000 lb)

Sheets and Plate: Ma, FSa, ¼ in., 54¢-56¢; 0.188 in., 56¢-58¢; B & S gage 8, 58¢-60¢; 10, 59¢-61¢; 12, 63¢-65¢; 14, 69¢-74¢; 16, 76¢-81¢; 18, 84¢-89¢; 20, 96¢-$1.01; 22, $1.22-$1.31; 24, $1.62-$1.75. Specification grade higher.

Extruded Round Rod: M, diam in., ¼ to 0.311, 58¢; ½ to ¾, 46¢; 1¼ to 1.749, 43¢ 2½ to 5, 41¢. Other alloys higher.

Extruded Square, Hex. Bar: M, size across flats, in., ¼ to 0.311, 61¢; ½ to 0.749, 48¢; 1¼ to 1.749, 44¢; 2½ to 4, 42¢. Other alloys higher.

Extruded Solid Shapes, Rectangle: M, in weight per ft, for perimeters of less than size indicated, 0.10 to 0.11 lb per ft, per. up to 3.5 in., 55¢; 0.22 to 0.25 lb per ft, per. up to 5.9 in., 51¢; 0.50 to 0.59 lb per ft, per. up to 8.6 in., 47¢; 1.8 to 2.59 lb per ft, per. up to 19.5 in., 44¢; 4 to 6 lb per ft, per. up to 28 in., 43¢. Other alloys higher.

Extruded Round Tubing: M, wall thickness, outside diam, in., 0.049 to 0.057, ¼ to 5/16, $1.14; 5/16 to ⅜, $1.02; ½ to ¾, 76¢; 1 to 2 in., 65¢; 0.065 to 0.082, ⅜ to 7/16, 85¢; ⅝ to ¾, 62¢; 1 to 2 in., 57¢; 0.165 to 0.219, ⅝ to ¾, 54.5¢; 1 to 2 in., 53¢; 3 to 4 in., 49¢. Other alloys higher.

Nickel and Monel

(Base prices, cents per lb, f.o.b. mill)

	Nickel	Monel
Sheets, cold-rolled	60	47
Strip, cold-rolled	66	50
Rods and bars	56	45
Angles, hot-rolled	56	45
Plates	58	46
Seamless tubes	89	80
Shot and blocks	..	40

Copper, Brass, Bronze

(Cents per lb, freight prepaid on 200 lb)

	Sheets	Rods	Extruded Shapes
Copper	32.18	....	31.78
Copper, h-r	....	28.03	....
Copper, drawn	....	29.28	....
Low brass	30.12	29.81	33.03*
Yellow brass	28.69	28.38	31.70*
Red brass	30.60	30.29	33.51*
Naval brass	33.51	27.57	28.82
Leaded brass	....	23.19	27.22
Com'l bronze	31.61	31.30	34.27*
Manganese bronze	37.01	30.92	32.42
Phosphor bronze	50.90	51.15	....
Muntz metal	31.58	27.14	28.39
Everdur, Herculoy, Olympic, etc.	37.19	36.14	....
Nickel silver, 10 pct	39.66	41.87	46.80
Arch. bronze	....	....	27.22

*Seamless tubing.

Primary Metals

(Cents per lb, unless otherwise noted)

Aluminum, 99+%, 10,000 lb, freight allowed	17.00
Aluminum pig	16.00
Antimony, American, Laredo, Tex.	32.00
Beryllium copper, 3.75-4.25% Be dollars per lb contained Be	$24.50
Beryllium aluminum 5% Be, dollars per lb contained Be	$52.00
Bismuth, ton lots	$2.00
Cadmium, del'd	$2.00
Cobalt, 97-99% (per lb)	$1.80 to $1.87
Copper, electro, Conn. Valley	18.50
Copper, lake, Conn. Valley	18.625
Gold, U. S. Treas., dollars per oz.	$35.00
Indium, 99.8%, dollars per troy oz.	$2.25
Iridium, dollars per troy oz.	$100 to $110
Lead, St. Louis	11.80
Lead, New York	12.00
Magnesium, 99.8+%, f.o.b. Freeport, Tex.	20.50
Magnesium, sticks, car lots	34.50
Mercury, dollars per 76-lb flask f.o.b. New York	$70 to $73
Nickel, electro, f.o.b. New York	42.97
Palladium, dollars per troy oz.	$24.00
Platinum, dollars per troy oz.	$69 to $72
Silver, New York, cents per oz.	73.25
Tin, New York	77.50
Zinc, East St. Louis	9.75 to 10.00
Zinc, New York	10.72
Zirconium copper, 10-12 pct Zr, per lb contained Zr	$12.00

Remelted Metals

Brass Ingot

(Cents per lb delivered, carloads)

85-5-5-5 ingot	
No. 115	16.75-18.25
No. 120	16.25-17.75
No. 123	15.75-17.25
80-10-10 ingot	
No. 305	21.75
No. 315	19.75
88-10-2 ingot	
No. 210	27.75
No. 215	25.25
No. 245	18.25-21.00
Yellow ingot	
No. 405	14.25-16.00
Manganese bronze	
No. 421	20.75

Aluminum Ingot

(Cents per lb, lot of 30,000 lb)

95-5 aluminum-silicon alloys	
0.30 copper, max.	18.50-19.00
0.60 copper, max.	18.25-18.75
Piston alloys (No. 122 type)	16.50-17.00
No. 12 alum. (No. 2 grade)	16.25-16.75
108 alloy	16.75-17.25
195 alloy	17.50-18.00
13 alloy	18.50-19.00
AXS-679	16.75-17.25
5% Ti, Aluminum, f.o.b., Eddystone, Pa.	
Low copper	31.00
2% copper	28.00

Steel deoxidizing aluminum, notch-bar granulated or shot

Grade 1—95-97½%	17.75-18.50
Grade 2—92-95%	16.75-17.50
Grade 3—90-92%	15.75-16.50
Grade 4—85-90%	15.25-15.75

Electroplating Supplies

Anodes

(Cents per lb, freight allowed, in 500 lb lots)

Copper	
Cast, oval, 15 in. or longer	35½
Electrodeposited	29¾
Rolled, oval, straight, delivered	33
Ball anodes	33¾
Brass, 80-20	
Cast, oval, 15 in. or longer	31¼
Zinc, oval, 99.886, f.o.b. Detroit	17¼
Ball anodes	16¼
Nickel 99 pct plus	
Cast	59.00
Rolled, depolarized	60.00
Cadmium	$2.15
Silver 999 fine, rolled, 100 oz lots, per troy oz, f.o.b. Bridgeport, Conn.	79

Chemicals

(Cents per lb, f.o.b. shipping point)

Copper cyanide, 100 lb drum	46½
Copper sulfate, 99.5 crystals, bbl.	11.10
Nickel salts, single or double, 4-100 lb bags, frt allowed	18.00
Nickel chloride, 300 lb bbl.	24.50
Silver cyanide, 100 oz lots, per oz.	59
Sodium cyanide, 96 pct domestic 200 lb drums	19.25
Zinc sulfate, 89 pct granular	11.00
Zinc cyanide, 100 lb drums	38.00

Scrap Metals

Brass Mill Scrap

(Cents per pound; add ½¢ per lb for shipments of 20,000 to 40,000 lb; add 1¢ for more than 40,000 lb)

	Heavy	Turnings
Copper	15½	14¾
Yellow brass	12½	11¾
Red brass	14	13¼
Commercial bronze	14¼	13½
Manganese bronze	12	11¼
Leaded brass rod ends	12¼	....

Custom Smelters' Scrap

(Cents per pound, carload lots, delivered to refinery)

No. 1 copper wire	15.25
No. 2 copper wire	14.25
Light copper	13.25
Refinery brass	13.00*
Radiators	9.50

*Dry copper content.

Ingot Makers' Scrap

(Cents per pound, carload lots, delivered to producer)

No. 1 copper wire	15.25
No. 2 copper wire	14.25
Light copper	13.25
No. 1 composition	12.50
No. 1 comp. turnings	12.00
Rolled brass	10.50
Brass pipe	10.50
Radiators	9.25- 9.50
Heavy yellow brass	9.50
Aluminum	
Mixed old cast	10.00-10.50
Mixed old clips	10.00-10.50
Mixed turnings, dry	8.50- 9.00
Pots and pans	10.00-10.50
Low copper	11.50-12.00

Dealers' Scrap

(Dealers' buying prices, f.o.b. New York in cents per pound)

Copper and Brass

No. 1 heavy copper and wire	13¼—13½
No. 2 heavy copper and wire	12¼—12½
Light copper	11¼—11½
Auto radiators (unsweated)	8 — 8¼
No. 1 composition	10½—10¾
No. 1 composition turnings	10 —10½
Clean red car boxes	8¾— 9
Cocks and faucets	8¾— 9
Mixed heavy yellow brass	6¾— 7
Old rolled brass	8 — 8¼
Brass pipe	8¾— 9
New soft brass clippings	10½—11
Brass rod ends	9¾—10
No. 1 brass rod turnings	9½— 9¾

Aluminum

Alum. pistons and struts	4½— 5
Aluminum crankcases	7½— 8
2S aluminum clippings	10½—11
Old sheet and utensils	7½— 8
Borings and turnings	4
Misc. cast aluminum	7½— 8
Dural clips (24S)	7½— 8

Zinc

New zinc clippings	6½— 7
Old zinc	4 — 4½
Zinc routings	2½— 3
Old die cast scrap	3¼— 3½

Nickel and Monel

Pure nickel clippings	21 —23
Clean nickel turnings	14 —15
Nickel anodes	20 —22
Nickel rod ends	20 —22
New Monel clippings	12 —14
Clean Monel turnings	8 — 9
Old sheet Monel	10 —12
Old Monel castings	9 —10
Inconel clippings	11 —13
Nickel silver clippings, mixed	8 —10
Nickel silver turnings, mixed	6 — 7

Lead

Soft scrap, lead	9½— 9¾
Battery plates (dry)	4½— 4¾

Magnesium

Segregated solids	9 —10
Castings	5½— 6½

Miscellaneous

Block tin	60 —62
No. 1 pewter	38 —40
No. 1 auto babbitt	35 —37
Mixed common babbitt	9 — 9¼
Solder joints	11½—12
Siphon tops	40 —42
Small foundry type	11½—12
Monotype	10½—11
Lino. and stereotype	9¾—10¼
Electrotype	8¼— 8½
New type shell cuttings	11½—11¾
Hand picked type shells	4 — 4½
Lino. and stereo. dross	4¾— 5
Electro. dross	2¾— 3

MARKETS—PRICES—TRENDS

SCRAP
Iron & Steel

Prices Off With Little Consumer Interest

The market failed to show any signs of strength and as a consequence prices are off again. Consumers have shown little interest in placing new business and indications are that several weeks will elapse before there will be any active buying. Most mills have sufficient inventories for capacity operations and at present are not too concerned about their scrap supplies. Some mills have held up on their shipments and this has not helped the overall market sentiment.

With sufficient inventories the mills have become more selective in their purchases. Off-specification scrap is being rejected and the lush days for some traders are now over when everything shipped would be accepted. Bundles have been rejected at several mills and dealers will undoubtedly be more careful when sending this item in the future.

This week the top quotation of No. 1 steel was down $2.00 in Detroit; in Chicago it was off $1.00; and in New York it was off 50¢.

THE IRON AGE scrap composite is off 33¢ a ton to $26.25 per gross ton.

PITTSBURGH—The market was in a year-end doldrums this week. No. 1 heavy melting held unchanged at $30.00. It was conceded, however, that prices are likely to firm early in the new year. Consumer tendency to reject off-specification scrap is becoming more marked, a reflection of the current softness of the market. Railroad specialties and cast were slightly weaker.

CHICAGO—Prices fell another dollar here in a very thin and quiet market. Some expect more action in January but as yet strength has not appeared. The big investigation on bundles has discouraged buyers from considering further purchases at the moment on this type of scrap. This is bad for everybody, particularly the dealers which have No. 2 bundles stacked up to their ears. It is regrettable that some sharp traders have again caused embarrassment to the whole trade by shipping off quality material and using other subterfuges.

PHILADELPHIA—The scrap market continued inactive here. There was no business placed to indicate new prices. The competition for industrial scrap is reported to be keen. Brokers are pushing to fill old orders. Offerings of yard cast at $33.00 are plentiful. One local mill, long out of the market, is expected to start up ingot operations early in February. Quotations are unchanged, except for a $1.00 drop in yard cast.

NEW YORK—The market is down here on the absence of mill buying. New commitments are not being offered and shipments on old orders are running out. Some material from this district is still being shipped to Pittsburgh. There have been some holdups on shipments indicating that the mills have plenty of scrap. No. 1 steel is off another 50¢ this week, being quoted at $19.00 to $19.50.

DETROIT—In the face of unexpectedly large industrial scrap tonnages generated during December and the absence of substantial mill buying, the Detroit market is off, on an average of $2.00 this week, according to reliable trade sources. Bid prices on January lists are reported to be off sharply compared with a month ago reflecting the downward trend in prices here during the past few weeks. Blast furnace grades are also weak, it is reported. The cast market is soft in absence of any major foundry purchases.

CLEVELAND—In the post holiday lull weakness in all grades particularly dealer material prevailed here and in the Valley. Industrial lists continue to bring more than quoted prices but not as much as some observers expected. Railroad lists are expected to follow the same pattern. At the moment the bottom of the market appears to have been reached but too many people are too anxious to sell to sustain the market at present levels in the continued absence of mill buying.

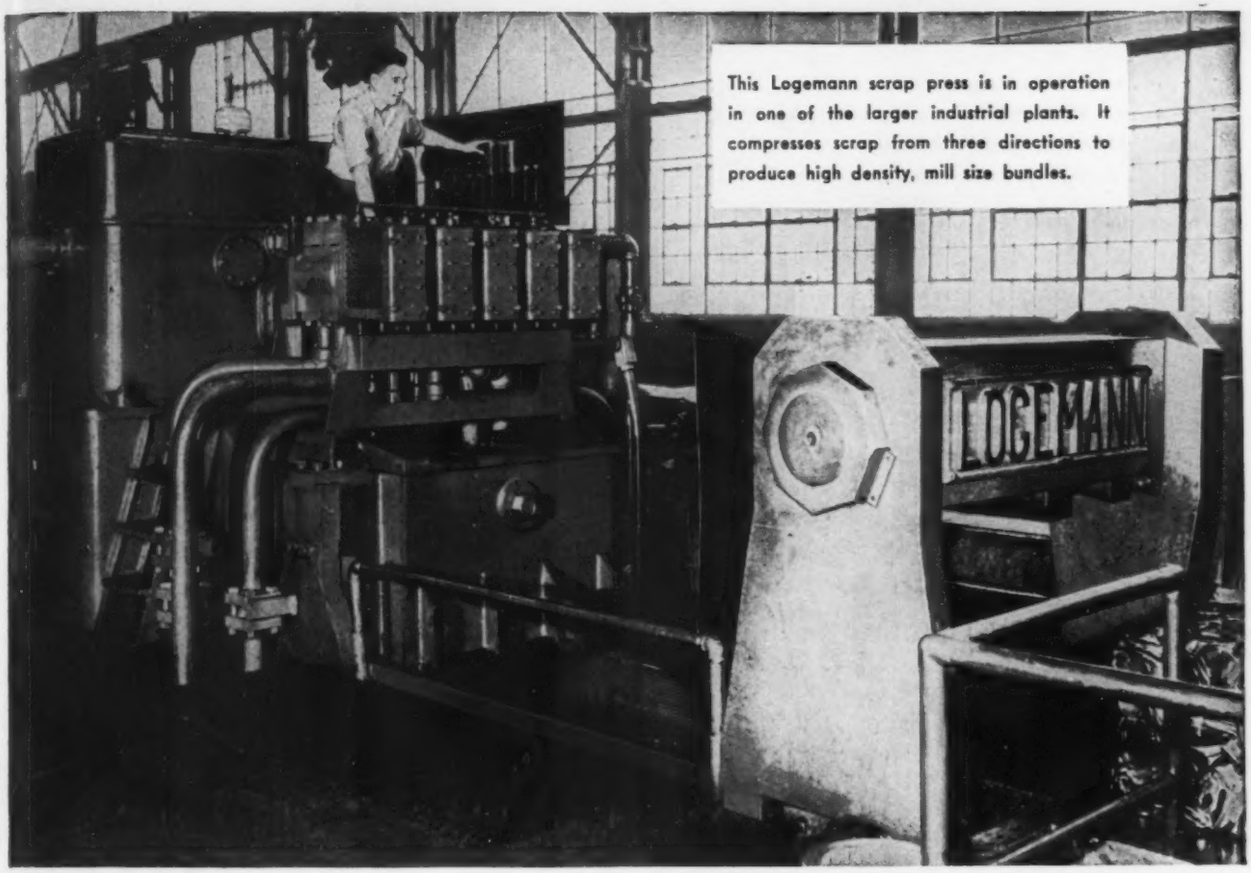
BOSTON—Business is off here with practically no activity. However, in spite of no active trading, the price of No. 1 heavy melting is up $1.00, being quoted at $18.00 to $19.00. Cast prices are still unchanged, and the demand for these items is very thin. At present, no new commitments have been made for January or February.

BUFFALO—Dealers' sentiments were jolted during the week when the leading consumer of scrap held up shipments on recent heavy purchases. Approximately 20,000 tons were bought in the previous week. The consumer attributes the embargo to a "high inventory position." The announcement injected a weaker tone into the market. Dealers admitted making liberal purchases to cover commitments. They fear a heavy backup of material in their yards if the embargo continues long after the turn of the year.

CINCINNATI—Scrap prices here were tottering on the brink of another drop with the market still in a holiday hangover. One major consumer in this district is out of the market, another is holding up shipment on No. 2 bundles and No. 2 steel until late this week and a third is buying a little tonnage but not enough to disturb the market one way or another. Dealer grades are at low ebb and demand for machine shop turnings is practically nonexistent.

ST. LOUIS—Shipments of scrap iron into the St. Louis industrial district were fairly large as country dealers seemed eager to get cash before the end of the year. Contrary to the lush years when they held up shipments to hold down income taxes. Mills are out of the market until about the second week in January.

BIRMINGHAM—Purchase by Atlantic Steel Co. of No. 2 heavy melting steel for shipment within 30 days is the only new commitment for openhearth grades reported in the southern district. Republic Steel has placed few orders for openhearth material recently but still is in the market for blast furnace grades. Receipts generally are light at dealers' yards.



This Logemann scrap press is in operation in one of the larger industrial plants. It compresses scrap from three directions to produce high density, mill size bundles.

Self-Contained . . . .
Triple Compression . .
Automatically Controlled

LOGEMANN SCRAP PRESSES

handle high tonnages with minimum labor . . . *at low cost*

•

LOGEMANN METAL BALERS

. . . are built in a large range of sizes to meet specific conditions. Let Logemann's engineering service help you arrive at the most efficient and economical way of handling your scrap.

•

The compact unit illustrated is completely self-contained with oil tank and pump located directly over the press . . . utilizing the advantages of short pipe lines. Automatic controls, mounted in front of pump, give the operator full visibility at all times. Controls operate rams successively within a single rigid box. There is no complex construction which means there is *no need for specially-trained maintenance crews.*

Both two-ram and three-ram models are available with automatic controls or for manual manipulation.

Logemann Bros. Co. have specialized in the production of scrap metal presses for sheet mills, stamping plants, scrap yards, and metal manufacturing plants of all types for nearly 75 years. Write for full information — please state the nature of your scrap and tonnage.

LOGEMANN BROTHERS COMPANY
3164 W. Burleigh Street • Milwaukee 10, Wisconsin

Scrap IRON & STEEL Prices

Going prices as obtained in the trade by THE IRON AGE, based on representative tonnages. All prices are per gross ton delivered to consumer unless otherwise noted.

Pittsburgh

No. 1 hvy. melting	$29.50 to $30.00
No. 2 hvy. melting	26.50 to 27.00
No. 1 bundles	29.50 to 30.00
No. 2 bundles	24.50 to 25.00
Machine shop turn.	21.50 to 22.00
Mixed bor. and ms. turns.	21.50 to 22.00
Shoveling turnings	25.50 to 26.00
Cast iron borings	24.50 to 25.00
Low phos. plate	32.00 to 32.50
Heavy turnings	25.00 to 26.00
No. 1 RR, hvy, melting	31.00 to 31.50
Scrap rails, random lght.	36.00 to 37.00
Rails 2 ft and under	38.50 to 39.50
RR. steel wheels	33.00 to 34.00
RR. spring steel	33.00 to 34.00
RR. couplers and knuckles	33.00 to 34.00
No. 1 machinery cast.	37.00 to 38.00
Mixed yard cast.	34.00 to 35.00
Heavy breakable cast.	28.00 to 29.00
Malleable	33.00 to 34.00

Chicago

No. 1 hvy. melting	$25.00 to $26.00
No. 2 hvy. melting	23.00 to 24.00
No. 1 factory bundles	25.00 to 26.00
No. 1 dealers' bundles	22.00 to 23.00
No. 2 dealers' bundles	20.00 to 21.00
Machine shop turn.	17.00 to 18.00
Mixed bor. and turn.	17.00 to 18.00
Shoveling turnings	18.00 to 19.00
Cast iron borings	17.00 to 18.00
Low phos. forge crops	31.00 to 32.00
Low phos. plate	29.00 to 30.00
No. 1 RR. hvy. melting	28.00 to 29.00
Scrap rails, random lgth.	34.00 to 35.00
Rerolling rails	37.00 to 38.00
Rails 2 ft and under	36.00 to 37.00
Locomotive tires, cut	32.00 to 33.00
Cut bolsters & side frames	31.00 to 32.00
Angles and splice bars	31.00 to 32.00
RR. steel car axles	37.00 to 38.00
No. 3 steel wheels	32.00 to 33.00
RR. couples and knuckles	32.00 to 33.00
No. 1 machinery cast.	38.00 to 39.00
No. 1 agricul. cast.	37.00 to 38.00
Heavy breakable cast.	31.00 to 32.00
RR. grate bars	26.00 to 27.00
Cast iron brake shoes	30.00 to 31.00
Cast iron car wheels	34.00 to 35.00
Malleable	36.00 to 37.00

Philadelphia

No. 1 hvy, melting	$23.00 to $24.00
No. 2 hvy, melting	21.50 to 22.50
No. 1 bundles	23.00 to 24.00
No. 2 bundles	18.00 to 19.00
Machine shop turn.	16.00 to 17.00
Mixed bor. and turn.	14.00 to 15.00
Shoveling turnings	17.00 to 18.00
Low phos. punchings, plate	26.00 to 27.00
Low phos. 5 ft and under	24.50 to 25.50
Low phos. bundles	24.50 to 25.50
Hvy. axle forge turn.	23.00 to 24.00
Clean cast chem. borings	28.00 to 29.00
RR. steel wheels	28.00 to 29.00
RR. spring steel	28.00 to 29.00
Rails 18 in. and under	37.00 to 39.00
No. 1 machniery cast.	36.00 to 38.00
Mixed yard cast.	23.00 to 24.00
Heavy breakable cast.	34.00 to 35.00
Cast iron carwheels	37.00 to 38.00
Malleable	39.00 to 40.00

Cleveland

No. 1 hvy. melting	$28.00 to $28.50
No. 2 hvy. melting	26.00 to 26.50
No. 1 busheling	28.00 to 28.50
No. 1 bundles	28.00 to 28.50
No. 2 bundles	23.50 to 24.00
Machine shop turn.	18.00 to 18.50
Mixed bor. and turn.	19.50 to 20.00
Shoveling turnings	19.50 to 20.00
Cast iron borings	19.50 to 20.00
Low phos. 2 ft and under	29.00 to 29.50
Steel axle turn.	27.00 to 27.50
Drop forge flashings	28.00 to 28.50
No. 1 RR. hvy. melting	30.00 to 30.50
Rails 3 ft and under	43.00 to 44.00
Rails 18 in. and under	45.00 to 46.00
No. 1 machinery cast.	43.00 to 44.00
RR. cast	43.00 to 44.00
RR. grate bars	30.00 to 31.00
Stove plate	34.00 to 35.00
Malleable	38.00 to 39.00

Youngstown

No. 1 hvy. melting	$30.50 to $31.00
No. 2 hvy. melting	28.50 to 29.00
No. 1 bundles	30.50 to 31.00
No. 2 bundles	$25.50 to $26.00
Machine shop turn.	20.50 to 21.00
Shoveling turnings	22.00 to 22.50
Cast iron borings	22.00 to 22.50
Low phos. plate	31.50 to 32.00

Buffalo

No. 1 hvy. melting	$28.00 to $28.50
No. 2 hvy. melting	26.00 to 26.50
No. 1 busheling	26.00 to 26.50
No. 1 bundles	27.00 to 27.50
No. 2 bundles	24.50 to 25.00
Machine shop turn.	18.50 to 19.00
Mixed bor. and turn.	19.50 to 20.00
Shoveling turnings	19.50 to 20.00
Cast iron borings	19.50 to 20.00
Low phos. plate	29.50 to 30.00
Scrap rails, random lgth.	33.50 to 34.00
Rails 2 ft and under	39.50 to 40.00
RR. steel wheels	35.00 to 36.00
RR. spring steel	35.00 to 36.00
RR. couplers and knuckles	35.00 to 36.00
No. 1 machinery cast.	38.00 to 38.50
No. 1 cupola cast.	35.00 to 36.00
Stove plate	33.50 to 34.00
Small indus. malleable	30.00 to 30.50

Birmingham

No. 1 hvy. melting	$25.00
No. 2 hvy. melting	24.00
No. 2 bundles	22.00
No. 1 busheling	24.00
Machine shop turn.	$16.00 to 17.00
Shoveling turnings	20.00 to 21.00
Cast iron borings	18.00
Bar crops and plate	30.00 to 31.00
Structural and plate	30.00 to 31.00
No. 1 RR. hvy. melt.	26.00 to 27.00
Scrap rails, random lgth.	30.00 to 31.00
Rerolling rails	36.00 to 37.00
Rails 2 ft and under	35.50 to 36.00
Angles & splice bars	35.00 to 36.00
Std. steel axles	28.00 to 29.00
No. 1 cupola cast.	36.00 to 37.00
Stove plate	29.00 to 30.00
Cast iron carwheels	28.00 to 29.00

St. Louis

No. 1 hvy, melting	$30.00 to $31.00
No. 2 hvy, melting	26.00 to 27.00
No. 2 bundled sheets	26.00 to 27.00
Machine shop turn.	16.00 to 17.00
Shoveling turnings	20.00 to 21.00
Rails, random lengths	32.00 to 33.00
Rails 3 ft and under	36.00 to 37.00
Locomotive tires, uncut	27.00 to 28.00
Angles and splice bars	34.00 to 35.00
Std. steel car axles	39.00 to 41.00
RR. spring steel	31.00 to 32.00
No. 1 machinery cast.	36.00 to 37.00
Hvy. breakable cast.	30.00 to 31.00
Cast iron brake shoes	30.00 to 31.00
Stove plate	30.00 to 31.00
Cast iron car wheels	34.00 to 35.00
Malleable	28.00 to 30.00

New York

Brokers' buying prices per gross ton, on cars:

No. 1 hvy, melting	$19.00 to $19.50
No. 2 hvy, melting	17.75 to 18.00
No. 2 bundles	16.50 to 17.00
Machine shop turn.	10.50 to 11.00
Mixed bor. and turn.	10.50 to 11.00
Shoveling turnings	11.50 to 12.00
Clean cast chem. bor.	23.00 to 24.00
No. 1 machinery cast.	28.50 to 29.00
Mixed yard cast.	27.00 to 27.50
Charging box cast.	27.00 to 27.50
Heavy breakable cast.	27.00 to 27.50
Unstrp. motor blocks	22.00 to 23.00

Boston

Brokers' buying prices per gross ton, on cars:

No. 1 hvy, melting	$18.00 to $19.00
No. 2 hvy, melting	16.50 to 17.00
No. 1 bundles	18.00 to 19.00
No. 2 bundles	$14.50 to $15.00
Machine shop turn.	10.00 to 10.50
Mixed bor. and turn.	10.00 to 10.50
Shoveling turnings	12.00 to 12.50
No. 1 busheling	17.00 to 17.50
Clean cast chem. borings	18.00 to 18.50
No. 1 machinery cast.	32.00 to 34.00
No. 2 machinery cast.	28.00 to 29.00
Heavy breakable cast.	25.00 to 26.00
Stove plate	25.00 to 26.00

Detroit

Brokers' buying prices per gross ton, on cars:

No. 1 hvy, melting	$22.00 to $23.00
No. 2 hvy, melting	20.00 to 21.00
No. 1 bundles	24.00 to 25.00
New busheling	23.00 to 24.00
Flashings	23.00 to 24.00
Machine shop turn.	14.00 to 14.50
Mixed bor. and turn.	14.00 to 14.50
Shoveling turnings	15.50 to 16.00
Cast iron borings	15.50 to 16.00
Low phos. plate	24.00 to 25.00
No. 1 cupola cast.	32.00 to 33.00
Heavy breakable cast.	26.00 to 27.00
Stove plate	27.00 to 28.00
Automotive cast.	32.00 to 33.00

Cincinnati

Per gross ton, f.o.b. cars:

No. 1 hvy. melting	$26.00 to $26.50
No. 2 hvy. melting	23.50 to 24.00
No. 1 bundles	26.00 to 26.50
No. 2 bundles	21.50 to 22.00
Machine shop turn.	13.50 to 14.00
Mixed bor. and turn.	16.50 to 17.00
Shoveling turnings	16.50 to 17.00
Cast iron borings	16.50 to 17.00
Low phos. 18 in. under	33.00 to 34.00
Rails, random lengths	34.00 to 35.00
Rails, 18 in. and under	42.00 to 43.00
No. 1 cupola cast	39.00 to 40.00
Hvy. breakable cast	32.00 to 33.00
Drop broken cast	42.00 to 43.00

San Francisco

No. 1 hvy. melting		$20.00
No. 2 hvy. melting		18.00
No. 1 bundles		16.00
No. 2 bundles		16.00
No. 3 bundles		13.00
Machine shop turn		9.00
Elec. fur. 1 ft and under		28.00
No. 1 RR. hvy. melting		20.00
Scrap rails, random lgth.		20.00
No. 1 cupola cast.	$30.00 to	35.00

Los Angeles

No. 1 hvy. melting		$20.00
No. 2 hvy. melting		18.00
No. 1 bundles		16.00
No. 2 bundles		16.00
No. 3 bundles		13.00
Mach. shop turn.		12.00
Elec. fur. 1 ft and under		30.00
No. 1 RR. hvy. melting		20.00
No. 1 cupola cast.	$35.00 to	38.00

Seattle

No. 1 hvy. melting		$18.00
No. 2 hvy. melting		18.00
No. 1 bundles		16.00
No. 2 bundles		16.00
No. 3 bundles		12.00
Elec. fur. 1 ft. and under	$25.00 to	28.00
RR. hvy. melting		19.00
No. 1 cupola cast		30.00
Heavy breakable cast.		20.00

Hamilton, Ont.

No. 1 hvy. melting	$24.00
No. 1 bundles	16.00
No. 2 bundles	16.00
Mechanical bundles	22.00
Mixed steel scrap	20.00
Mixed bor. and turn.	18.00
Rails, remelting	24.00
Rails, rerolling	27.00
Bushelings	18.50
Bush., new fact, prep'd	22.00
Bush., new fact, unprep'd	17.00
Short steel turnings	18.00
Cast scrap	$40.00 to 43.00

SCRAP COMES INTO ITS OWN

The vision of Abram S. Hewitt is largely responsible for the introduction of open hearth furnaces into the United States. He saw an exhibit of a new process at the Paris Exposition of 1867 which convinced him that greater economical conservation of natural raw materials could be effected by using scrap iron and steel. This process was a vast improvement, conservation-wise, over the Bessemer furnace which consumed practically no scrap. In 1869 the first open hearth furnace for the manufacture of steel commenced operations in this country. Today, this tremendous industry has developed to the extent that open hearth furnaces produce steel containing up to 80% scrap. Concurrent with the extensive use of the open hearth furnaces in this country, Luria Brothers & Company, Inc. commenced to serve the industry with their scrap requirements. Today, with our widespread organization and experience, we continue to serve consumers and sellers of scrap, regardless of amount or specification.

CONSULT OUR NEAREST OFFICE FOR THE PURCHASE AND SALE OF SCRAP

LURIA BROTHERS AND COMPANY, INC.

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LEADERS IN IRON AND STEEL SCRAP SINCE 1889

Comparison of Prices

Steel prices on this page are the average of various f.o.b. quotations of major producing areas: Pittsburgh, Chicago, Gary, Cleveland, Youngstown.

Flat-Rolled Steel: (cents per pound)	Jan. 3, 1950	Dec. 27*, 1949	Dec. 6, 1949	Jan. 4, 1950
Hot-rolled sheets	3.35	3.35	3.25	3.26
Cold-rolled sheets	4.10	4.10	4.00	4.00
Galvanized sheets (10 ga)	4.40	4.40	4.40	4.40
Hot-rolled strip	3.25	3.25	3.25	3.265
Cold-rolled strip	4.18	4.18	4.038	4.063
Plates	3.50	3.50	3.40	3.42
Plates wrought iron	7.85	7.85	7.85	7.85
Stains C-R strip (No. 302)	33.00	33.00	33.00	33.25
Tin and Terneplate: (dollars per base box)				
Tinplate (1.50 lb) cokes.	*$7.50*	$7.75	$7.75	$7.75
Tinplate, electro (0.50 lb)	*6.60*	6.70	6.70	6.70
Special coated mfg. ternes	*6.50*	6.65	6.65	6.65
Bars and Shapes: (cents per pound)				
Merchant bars	3.45	3.45	3.35	3.37
Cold-finished bars	3.995	3.995	3.995	3.995
Alloy bars	3.95	3.95	3.75	3.75
Structural shapes	3.40	3.40	3.25	3.25
Stainless bars (No. 302).	28.50	28.50	28.50	28.50
Wrought iron bars	9.50	9.50	9.50	9.50
Wire: (cents per pound)				
Bright wire	4.50	4.50	4.15	4.256
Rails: (dollars per 100 lb)				
Heavy rails	$3.40	$3.40	$3.20	$3.20
Light rails	3.75	3.75	3.55	3.55
Semifinished Steel: (dollars per net ton)				
Rerolling billets	$54.00	$54.00	$52.00	$52.00
Slabs, rerolling	54.00	54.00	52.00	52.00
Forging billets	63.00	63.00	61.00	61.00
Alloy blooms, billets, slabs	66.00	66.00	63.00	63.00
Wire rod and Skelp: (cents per pound)				
Wire rods	3.85	3.85	3.40	3.619
Skelp	3.15	3.15	3.25	3.25

*Revised

Price advances over previous week are printed in Heavy Type; declines appear in *Italics*.

Pig Iron: (per gross ton)	Jan. 3, 1950	Dec. 27, 1949	Dec. 6, 1949	Jan. 4, 1950
No. 2, foundry, Phila.	$50.42	$50.42	$50.42	$51.56
No. 2, Valley furnace	46.50	46.50	46.50	46.50
No. 2, Southern Cin'ti	46.08	46.08	46.08	49.47
No. 2, Birmingham	39.38	39.38	39.38	43.38
No. 2, foundry, Chicago†	46.50	46.50	46.50	46.50
Basic del'd Philadelphia.	49.92	49.92	49.92	50.76
Basic, Valley furnace	46.00	46.00	46.00	46.00
Malleable, Chicago†	46.50	46.50	46.50	46.50
Malleable, Valley	46.50	46.50	46.50	46.50
Charcoal, Chicago	68.56	68.56	68.56	73.78
Ferromanganese‡	173.40	173.40	173.40	161.40

†The switching charge for delivery to foundries in the Chicago district is $1 per ton.
‡Average of U. S. prices quoted on Ferroalloy page.

Scrap: (per gross ton)				
Heavy melt'g steel, P'gh.	$29.75	$29.75	$31.75	$42.75
Heavy melt'g steel, Phila.	23.50	23.50	24.50	44.50
Heavy melt'g steel, Ch'go	*25.50*	26.50	27.50	41.75
No. 1 hy. com. sh't, Det.	*24.50*	26.50	27.50	38.00
Low phos. Young'n	31.75	31.75	33.75	47.75
No. 1, cast, Pittsburgh	*37.50*	38.50	39.50	68.00
No. 1, cast, Philadelphia	37.00	37.00	38.00	63.50
No. 1, cast, Chicago	38.50	38.50	42.50	61.00
Coke: Connellsville: (per net ton at oven)				
Furnace coke, prompt	$14.00	$14.00	$14.00	$17.00
Foundry coke, prompt	15.75	15.75	15.75	17.00
Nonferrous Metals: (cents per pound to large buyers)				
Copper, electro, Conn.	18.50	18.50	18.50	23.50
Copper, Lake Conn.	18.625	18.625	18.625	23.625
Tin Straits, New York	*77.50*	78.00	81.00	$1.03
Zinc, East St. Louis	*9.875*	9.75	9.75	17.50
Lead, St. Louis	11.80	11.80	11.80	21.30
Aluminum, virgin	17.00	17.00	17.00	17.00
Nickel electrolytic	42.97	42.97	42.97	42.90
Magnesium, ingot	20.50	20.50	20.50	20.50
Antimony, Laredo, Tex.	32.00	32.00	32.00	35.00

Composite Prices

Starting with the issue of May 12, 1949, the weighted finished steel composite was revised for the years 1941 to date. The weights used are based on the average product shipments for the 7 years 1937 to 1940 inclusive and 1946 to 1948 inclusive. The use of quarterly figures has been eliminated because it was too sensitive. (See p. 139 of May 12, 1949, issue.)

	Finished Steel Base Price	Pig Iron	Scrap Steel
Jan. 3, 1950	3.837¢ per lb.	$45.88 per gross ton	*$26.25* per gross ton
One week ago	3.837¢ per lb.*	45.88 per gross ton	26.58 per gross ton
One month ago	3.705¢ per lb.	45.88 per gross ton	27.92 per gross ton
One year ago	3.720¢ per lb.	46.91 per gross ton	43.00 per gross ton

	Finished Steel High	Finished Steel Low	Pig Iron High	Pig Iron Low	Scrap Steel High	Scrap Steel Low
1949	3.837¢ Dec. 27	3.705¢ May 3	$46.82 Jan. 4	$45.88 Sept. 6	$43.00 Jan. 1	$19.33 June 28
1948	3.721¢ July 27	3.193¢ Jan. 1	46.91 Oct. 12	39.58 Jan. 6	43.16 July 27	39.75 Mar. 9
1947	3.193¢ July 29	2.848¢ Jan. 1	37.98 Dec. 30	30.14 Jan. 7	42.58 Oct. 28	29.50 May 20
1946	2.848¢ Dec. 31	2.464¢ Jan. 1	30.14 Dec. 10	25.37 Jan. 1	31.17 Dec. 24	19.17 Jan. 1
1945	2.464¢ May 29	2.396¢ Jan. 1	25.37 Oct. 23	23.61 Jan. 2	19.17 Jan. 2	18.92 May 22
1944	2.396¢	2.396¢	$23.61	$23.61	19.17 Jan. 11	15.76 Oct. 24
1943	2.396¢	2.396¢	23.61	23.61	$19.17	$19.17
1942	2.396¢	2.396¢	23.61	23.61	19.17	19.17
1941	2.396¢	2.396¢	$23.61 Mar. 20	$23.45 Jan. 2	$22.00 Jan. 7	$19.17 Apr. 10
1940	2.30467¢ Jan. 2	2.24107¢ Apr. 16	23.45 Dec. 23	22.61 Jan. 2	21.83 Dec. 30	16.04 Apr. 9
1939	2.35367¢ Jan. 3	2.26689¢ May 16	22.61 Sept. 19	20.61 Sept. 12	22.50 Oct. 3	14.08 May 16
1938	2.58414¢ Jan. 4	2.27207¢ Oct. 18	23.25 June 21	19.61 July 6	15.00 Nov. 22	11.00 June 7
1937	2.58414¢ Mar. 9	2.32263¢ Jan. 4	23.25 Mar. 9	20.25 Feb. 16	21.92 Mar. 30	12.67 June 9
1936	2.32263¢ Dec. 28	2.05200¢ Mar. 10	19.74 Nov. 24	18.73 Aug. 11	17.75 Dec. 21	12.67 June 8
1935	2.07642¢ Oct. 1	2.06492¢ Jan. 8	18.84 Nov. 5	17.83 May 14	13.42 Dec. 10	10.33 Apr. 29
1934	2.15367¢ Apr. 24	1.95757¢ Jan. 2	17.90 May 1	16.90 Jan. 27	13.00 Mar. 13	9.50 Sept. 25
1933	1.95578¢ Oct. 3	1.75836¢ May 2	16.90 Dec. 5	13.56 Jan. 3	12.25 Aug. 8	6.75 Jan. 3
1932	1.89196¢ July 5	1.83901¢ Mar. 1	14.81 Jan. 5	13.56 Dec. 6	8.50 Jan. 12	6.43 July 5
1931	1.99626¢ Jan. 13	1.86586¢ Dec. 29	15.90 Jan. 6	14.79 Dec. 15	11.33 Jan. 6	8.50 Dec. 29
1929	2.31773¢ May 28	2.26498¢ Oct. 29	18.71 May 14	18.21 Dec. 17	17.58 Jan. 29	14.08 Dec. 8

Weighted index based on steel bars, shapes, plates, wire, rails, black pipe, hot and cold-rolled sheets and strip, representing major portion of finished steel shipments. Index recapitulated in Aug. 28, 1941, issue and in May 12, 1949.

Based on averages for basic iron at Valley furnaces and foundry iron at Chicago, Philadelphia, Buffalo, Valley and Birmingham.

Average of No. 1 heavy melting steel scrap delivered to consumers at Pittsburgh, Philadelphia and Chicago.

STEEL PRICES

Smaller numbers in price boxes indicate producing companies. For main office locations, see key on facing page.
Base prices at producing points apply only to sizes and grades produced in these areas. Prices are in cents per lb unless otherwise noted. Extras apply.

	Pittsburgh	Chicago	Gary	Cleveland	Canton Massillon	Middletown	Youngstown	Bethlehem	Buffalo	Conshohocken	Johnstown	Sparrows Point	Granite City	Detroit
INGOTS Carbon forging, net ton	$50.00 1													$50.00 31
Alloy net ton	$51.00 1.17													$51.00 31
BILLETS, BLOOMS, SLABS Carbon, rerolling net ton	$53.00 1	$53.00 1	$53.00 1				$57.00 13		$53.00 3	$58.00 26	$53.00 3			
Carbon forging billets, net ton	$63.00 1	$63.00 1.4	$63.00 1.8	$63.00 4			$63.00 25		$63.00 3.4	$65.00 26	$63.00 3			$63.00 31
Alloy, net ton	$66.00 1.17	$66.00 1.4	$66.00 1		$66.00 4.42		$66.00 13	$66.00 3	$66.00 3.4		$66.00 3			$66.00 31
SHEET BARS							$57.00 13							
PIPE SKELP	3.15 1.8						3.15 1.4							
WIRE RODS	3.85 2.18	3.85 2.4.33	3.85 6	3.85 2			3.85 6				3.85 3	3.85 3		
SHEETS Hot-rolled (18 ga. & hvr.)	3.35 1.5.9.15	3.35 22	3.35 1.6.8	3.35 4.5			3.35 1.4.6.13		3.35 3	3.45 26		3.35 3		3.55 12
Cold-rolled	4.10[1.5] 7.9.15.63		4.10 1.6.8	4.10 4.5		4.10 7	4.10 4.6		4.10 3			4.10 3	4.30 22	4.30 12
Galvanized (10 gage)	4.40 1.9.15		4.40 1.8		4.40 4		4.40[64] 5.65[44]					4.40 3		
Enameling (12 gage)	4.40 1		4.40 1.8	4.40 4		4.40 7	4.40[8] 4.90[76]						4.60 22	4.70 12
Long ternes (10 gage)	4.80 9.15		4.80 1			4.80 7								
Hi Str. low alloy, h.r.	5.05 1.5.9	5.05 1	5.05 1.6.8	5.05 4.5			5.05 1.4.6.13		5.05 3	5.05 26		5.05 3		5.25 12
Hi Str. low alloy, c.r.	6.20 1.5.9		6.20 1.6.8	6.20 4.5			6.20 4.6.13		6.20 3			6.20 3		6.40 12
Hi Str. low alloy, galv.	6.75 1			6.75 4	6.75 4							6.75 3		
STRIP Hot-rolled (over 6 in.)	3.25 5.7.9.28	3.25 33.66	3.25 1.6.8	3.25 5			3.25 1.4.6.13		3.25 3	3.35 26		3.25 3		3.55[47] 3.45[12]
Cold-rolled	4.15 5.7.9.63	4.30 8.66	4.30 8	4.15 2.5		4.15 7	4.15 4.6.13.40.48.49		4.15 3			4.15 3		4.40[68.81] 4.35[12.47]
Hi Str. low alloy, h.r.	4.95 9		4.95 1.6.8	4.95 5			4.95 1.4.6.13		4.95	4.95 26		4.95 3		5.15 12
Hi Str. low alloy, c.r.	6.20 9			6.05 2.5			6.05 4.6.13		6.05 3			6.05 3		6.40 12
TINPLATE† Cokes, 1.50-lb. base box 1.25 lb. deduct 20¢	$7.50 1.5.9.15		$7.50 1.6.8				$7.50 4					$7.60 3	$7.70 22	
Electrolytic 0.25, 0.50, 0.75 lb box	Deduct $1.15, 90¢ and 65¢ respectively from 1.50-lb coke base box price													
BLACKPLATE, 29 gage Hollowware enameling	5.30 1.6.15		5.30 1.6				5.30 4					5.40 3	5.50 22	
BARS Carbon steel	3.45 1.5.9.17	3.45 1.4.23	3.45 1.6.8	3.45 4	3.45 4.		3.45 1.4.6		3.45 3.4		3.45 3			3.65 12
Reinforcing‡	3.45 1.5	3.45 4	3.45 1.6.8	3.45 4	3.45 4		3.45 1.4.6		3.45 3.4		3.45 3	3.45 3		
Cold-finished*	3.95[5] 4.00[2.4] 17.53.69.71	4.00[2] 23.69.70	4.00 4.73.74	4.00 2.61	4.00 4.32		4.00 6.40.57		4.00 70					4.30 12
Alloy, hot-rolled	3.95 1.17	3.95 1.4.23	3.95 1.6.8		3.95 4.42		3.95 1.6.25	3.95 3	3.95 3.4		3.95 3			4.15 12
Alloy- cold-drawn*	4.65 2.17.53.69.71	4.65 2.23.69.70	4.65 4.73.74	4.65 2.61	4.65 4.42.82		4.65 6.25.57	4.65 3	4.65 3.70					
Hi Str. low alloy, h.r.	5.20 1.5		5.20 1.6.8	5.20 4			5.20 1.6	5.20 3	5.20 3		5.20 3			5.40 12
PLATE Carbon Steel	3.50 1.5	3.50 1	3.50 1.6.8	3.50 4			3.50 13		3.50 3	3.60 26	3.50 3	3.50 3		3.75 12
Floor plates	4.55 1	4.55 1	4.55 3	4.55 5						4.55 26				
Alloy	4.40 1	4.40 1	4.40 1				4.40 13			4.40 26	4.40 3	4.40 3		
Hi St. low alloy	5.35 1.5	5.35 1	5.35 1.3	5.35 4.5			5.35 6			5.35 26	5.35 3	5.35 3		5.60 12
SHAPES, Structural	3.40 1.5.9	3.40 1.23	3.40 1.6.8					3.45 3	3.45 3		3.45 3			
Hi Str. low alloy	5.15 1.5	5.15 1	5.15 1.6.8				5.15 6	5.15 3	5.15 3		5.15 3			
MANUFACTURERS' WIRE Bright	4.50 2.5.18	4.50[12] 4.33.34		4.50 2.77			4.50 6	Kokomo=4.60[30]			4.50 3	4.60 3	Duluth=4.50[3] Pueblo= 14	
PILING, Steel sheet	4.20[1] 4.05[9]	4.20 1							4.20 3					

* Not reflecting latest price increases, see p. 333.

Smaller numbers indicate producing companies. See key at right.
Prices are in cents per lb unless otherwise noted. Extras apply.

IRON AGE

STEEL PRICES

Kansas City	Houston	Birmingham	WEST COAST Seattle, San Francisco, Los Angeles, Fontana		
					INGOTS Carbon forging, net ton
	$59.00 83				Alloy, net ton
		$53.00 11	F=$72.00[19]		BILLETS, BLOOMS, SLABS Carbon, rerolling, net ton
	$69.00 83	$63.00 11	F=$82.00[19]	Geneva=$61.00[16]	Carbon forging billets, net ton
	83		F=$ [19]		Alloy net ton
				Mansfield=$58.00 G. T.[75] Portsmouth=$55.00[20]	SHEET BARS
					PIPE SKELP
	3.95 83	3.85 11	SF, LA=4.65[24] LA=4.20[62]	Portsmouth=3.85[20] Worcester=3.70[2]	WIRE RODS
		3.35 4.11	SF, LA=4.05[24] F=4.25[19]	Ashland[7]=3.35 Niles= [76]	SHEETS Hot-rolled (18 ga. & hvr.)
		4.10 11	SF=5.05[24] F=5.00[19]		Cold-rolled
		4.40 4.11	SF, LA=5.15[24]	Ashland=4.40[7] Kokomo=4.50[30]	Galvanized (10 gage)
					Enameling (12 gage)
					Long ternes (10 gage)
		5.05 11	F=6.74[19]		Hi Str. low alloy, h.r.
			F=7.10[19]		Hi Str. low alloy, c.r.
					Hi Str. low alloy, galv.
3.85 83	3.65 83	3.25 11	SF, LA=4.00[62] F= [19] S=4.25[62]	Ashland=3.25[7] Atlanta=3.40[65]	STRIP Hot-rolled
			F=5.40[19] LA=5.00[27]	New Haven=4.65[2,68]	Cold-rolled
		4.85 11	F=6.64[19]		Hi Str. low alloy, h.r.
			F=5.40[19]		Hi Str. low alloy, c.r.
		$7.60 11	SF=$8.25[24]		TINPLATE Cokes, 1.50-lb. base box 1.25 lb, deduct 20¢
Deduct $1.15, 90¢ and 65¢ respectively from 1.50-lb coke base box price					Electrolytic 0.25, 0.50, 0.75 lb box
					BLACKPLATE, 29 gage Hollowware enameling
3.95 83	3.75 83	3.45 4.11	SF, LA=4.15[24] LA=4.15[62]	Atlanta=3.60[65]	BARS Carbon steel
3.95 83	3.75 83	3.45 4.11	SF, S=4.20[62] F=4.10[19]	Atlanta=3.60[65]	Reinforcing‡
				Putnam, Newark=4.55[69] Cumberland=3.95[73]	Cold-finished*
4.35 83			LA=5.00[62] F=4.95[19]		Alloy, hot-rolled
				Newark,[69] Worcester[2]=4.95	Alloy, cold-drawn*
		5.20 4.11	F=6.25[19]		Hi Str. low alloy, h.r.
	3.80 83	3.50 4.11	F=4.10[19] S=4.40[62] Geneva=3.50[16]	Claymont=3.60[29] Coatesville=3.60[21] Harrisburg=3.50[35]	PLATE Carbon steel
				Harrisburg=4.55[35]	Floor plates
			F=5.95[19]	Coatesville=4.50[21]	Alloy
		5.35 11		Geneva=5.35[16]	Hi Str. low alloy
3.85 83	3.65 83	3.40 11	SF=3.95[62] LA=4.00,[24,62]	Phoenixville=3.30[56] Geneva=3.40[16]	SHAPES, Structural
		5.15 11	F=4.00[19] S=4.05[62]	Fontana =5.75[19]	Hi Str. low alloy
4.75 83	4.55 83	4.50 4.11	SF, LA=5.45[24] LA=5.10[62]	Portsmouth=4.50[20] Worcester=4.80[2]	MANUFACTURERS' WIRE Bright

Notes: †Special coated mfg ternes, deduct $1.00 from 1.50-lb coke base box price. Can-making quality blackplate, 55 to 128-lb, deduct $1.90 from 1.50-lb coke base box. ‡Straight lengths only from producer to fabricator.

* Not reflecting latest price increases, see p. 333.

KEY TO STEEL PRODUCERS

With Principal Offices

1 Carnegie-Illinois Steel Corp., Pittsburgh
2 American Steel & Wire Co., Cleveland
3. Bethlehem Steel Co., Bethlehem
4 Republic Steel Corp., Cleveland
5 Jones & Laughlin Steel Corp., Pittsburgh
6 Youngstown Sheet & Tube Co., Youngstown
7 Armco Steel Corp., Middletown, Ohio
8 Inland Steel Co., Chicago
9 Weirton Steel Co., Weirton, W. Va.
10 National Tube Co., Pittsburgh
11 Tennessee Coal, Iron & R. R. Co., Birmingham
12 Great Lakes Steel Corp., Detroit
13 Sharon Steel Corp., Sharon, Pa.
14 Colorado Fuel & Iron Corp., Denver
15 Wheeling Steel Corp., Wheeling, W. Va.
16 Geneva Steel Co., Salt Lake City
17 Crucible Steel Co. of America, New York
18 Pittsburgh Steel Co., Pittsburgh
19 Kaiser Co., Inc., Oakland, Calif.
20 Portsmouth Steel Corp., Portsmouth, Ohio.
21 Lukens Steel Co., Coatsville, Pa.
22 Granite City Steel Co., Granite City, Ill.
23 Wisconsin Steel Co., South Chicago, Ill.
24 Columbia Steel Co., San Francisco
25 Copperweld Steel Co., Glassport, Pa.
26 Alan Wood Steel Co., Conshohocken, Pa.
27 Calif. Cold Rolled Steel Corp., Los Angeles
28 Allegheny Ludlum Steel Corp., Pittsburgh
29 Worth Steel Co., Claymont, Del.
30 Continental Steel Corp., Kokomo, Ind.
31 Rotary Electric Steel Co., Detroit
32 Laclede Steel Co., St. Louis
33 Northwestern Steel & Wire Co., Sterling, Ill.
34 Keystone Steel & Wire Co., Peoria, Ill.
35 Central Iron & Steel Co., Harrisburg, Pa.
36 Carpenter Steel Co., Reading, Pa.
37 Eastern Stainless Steel Corp., Baltimore
38 Washington Steel Corp., Washington, Pa.
39 Jessop Steel Co., Washington, Pa.
40 Blair Strip Steel Co., New Castle, Pa.
41 Superior Steel Corp., Carnegie, Pa.
42 Timken Steel & Tube Div., Canton, Ohio
43 Babcock & Wilcox Tube Co., Beaver Falls, Pa.
44 Reeves Steel & Mfg. Co., Dover, Ohio
45 John A. Roebling's Sons Co., Trenton, N. J.
46 Simonds Saw & Steel Co., Fitchburg, Mass.
47 McLouth Steel Corp., Detroit
48 Cold Metal Products Co., Youngstown
49 Thomas Steel Co., Warren, Ohio
50 Wilson Steel & Wire Co., Chicago
51 Sweet's Steel Co., Williamsport, Pa.
52 Superior Drawn Steel Co., Monaca, Pa.
53 A. M. Byers Co., Pittsburgh
54 Firth Sterling Steel & Carbide Corp., McKeesport, Pa.
55 Ingersoll Steel Div., Chicago
56 Phoenix Iron & Steel Co., Phoenixville, Pa.
57 Fitzsimons Steel Co., Youngstown
58 Stanley Works, New Britain, Conn.
59 Universal-Cyclops Steel Corp., Bridgeville, Pa.
60 Vanadium-Alloys Steel Co., Latrobe, Pa.
61 Cuyahoga Steel & Wire Co., Cleveland
62 Bethlehem Pacific Coast Steel Corp., San Francisco
63 Follansbee Steel Corp., Pittsburgh
64 Niles Rolling Mill Co., Niles, Ohio
65 Atlantic Steel Co., Atlanta
66 Acme Steel Co., Chicago
67 Joslyn Mfg. & Supply Co., Chicago
68 Detroit Steel Corp., Detroit
69 Wyckoff Steel Co., Pittsburgh
70 Bliss & Laughlin, Inc., Harvey, Ill.
71 Columbia Steel & Shafting Co., Pittsburgh
72 Cumberland Steel Co., Cumberland, Md.
73 La Salle Steel Co., Chicago
74 Monarch Steel Co., Inc., Indianapolis
75 Empire Steel Co., Mansfield, Ohio
76 Mahoning Valley Steel Co., Niles, Ohio
77 Oliver Iron & Steel Co., Pittsburgh
78 Pittsburgh Screw & Bolt Co., Pittsburgh
79 Standard Forgings Corp., Chicago
80 Driver Harris Co., Harrison, N. J.
81 Detroit Tube & Steel Div., Detroit
82 Reliance Div., Eaton Mfg. Co., Massillon, Ohio
83 Sheffield Steel Corp., Kansas City

MERCHANT WIRE PRODUCTS

To the dealer, f.o.b. mill

	Base Column	Pittsburg, Calif.
Standard & coated nails*	106	125
Woven wire fence†	116	139
Fence posts, carloads††	112	...
Single loop bale ties	113	137
Galvanized barbed wire**	126	146
Twisted barbless wire	126	...

* Pgh., Chi., Duluth; Worcester, 6 columns higher; Houston, 8 columns higher; Kansas City, 12 columns higher. † 15½ gage and heavier. ** On 80 rod spools, in carloads. †† Duluth, Joliet and Johnstown.

	Base per 100 lb	Pittsburg, Calif.
Annealed fence wire‡	$5.15	$6.10
Annealed, galv. fencing‡	5.60	6.55
Cut nails, carloads‡‡	6.75	...

‡ Add 30¢ at Worcester; 20¢ at Chicago; 10¢ at Sparrows Pt.
‡‡ Less 20¢ to jobbers.

PRODUCING POINTS — *Standard, Coated or galvanized nails, woven wire fence, bale ties, and barbed wire:* Alabama City, Ala., 4; Atlanta, 65; Aliquippa, Pa. (except bale ties), 5; Bartonville, Ill. (except bale ties), 34; Chicago, 4; Donora, Pa., 2; Duluth, 2; Fairfield, Ala., 11; Johnstown, Pa. (except bale ties), 3; Joliet, Ill., 2; Kokomo, Ind., 30; Minnequa, Colo., 14; Monessen, Pa. (except bale ties), 18; Pittsburg, Calif., 24; Portsmouth, Ohio, 20; Rankin, Pa. (except bale ties), 2; Sparrows Point (except woven fence), 3; Sterling, Ill., 33; San Francisco (except nails and woven fence), 14; Torrance, Calif. (nails only), 24; Worcester (nails only), 2; Houston (except bale ties), 83; Kansas City (except bale ties), 83.

Fence posts: Duluth, 2; Johnstown, Pa., 3; Joliet, Ill., 2; Minnequa, Colo., 14; Moline, Ill., 4; Williamsport, Pa., 51.

Cut nails: Wheeling, W. Va., 15; Conshohocken, Pa., 26.

CLAD STEEL

Base prices, cents per pound, f.o.b. mill

Stainless-carbon	Plate	Sheet
No. 304, 20 pct, Coatesville, Pa. (21)	*26.50	
Washgtn, Pa. (39)	*26.50	
Claymont, Del. (29)	*26.50	
Conshohocken, Pa. (26)		*22.50
New Castle, Ind. (55)	*26.50	*24.00
Nickel-carbon 10 pct, Coatesville, (26)	27.50	
Inconel-carbon 10 pct, Coatesville, (21)	36.00	
Monel-carbon 10 pct, Coatesville, (21)	29.00	
No. 302 Stainless-copper-stainless, Carnegie, Pa. (41)		75.00
Aluminized steel sheets, hot dip, Butler, Pa., (7)		7.75

* Includes annealing and pickling, or sandblasting.

ELECTRICAL SHEETS

22 gage, HR cut lengths, f.o.b. mill

	Cents per lb
Armature	6.45
Electrical	*6.95
Motor	*7.95
Dynamo	8.75
Transformer 72	9.30
Transformer 65	9.85
Transformer 58	10.55
Transformer 52	11.35

PRODUCING POINTS—Beech Bottom, W. Va., 18; Brackenridge, Pa., 28; Follansbee, W. Va., 63; Granite City, Ill., 22*, add 20¢; Indiana Harbor, Ind., 8; Mansfield, Ohio, 75; Niles, Ohio, 64, 76; Vandergrift, Pa., 1; Warren, Ohio, 4; Zanesville, Ohio, 7.

Numbers after producing points correspond to steel producers. See key on Steel Price page.

BOLTS, NUTS, RIVETS, SET SCREWS

Consumer Prices

(Bolts and nuts f.o.b. mill Pittsburgh, Cleveland, Birmingham or Chicago) Base discount less case lots

Machine and Carriage Bolts

	Pct Off List
½ in. & smaller x 6 in. & shorter	35
9/16 & ⅝ in. x 6 in. & shorter	37
¾ in. & larger x 6 in. shorter	34
All diam., longer than 6 in.	30
Lag, all diam over 6 in. & longer	35
Lag, all diam x 6 in. & shorter	37
Plow bolts	47

Nuts, Cold Punched or Hot Pressed

(Hexagon or Square)

½ in. and smaller	35
9/16 to 1 in. inclusive	34
1⅛ to 1½ in. inclusive	32
1⅝ in. and larger	27

On above bolts and nuts, excepting plow bolts, additional allowances of 15 pct for full container quantities. There is an additional 5 pct allowance for carload shipments.

Semifinished Hexagon Nuts

	USS	SAE
7/16 in. and smaller	...	41
½ in. and smaller	38	...
½ in. through 1 in.	...	39
9/16 in. through 1 in.	37	...
1⅛ in. through 1½ in.	35	37
1⅝ in. and larger	28	...

In full case lots, 15 pct additional discount.

Stove Bolts

Packages, nuts separate	$61.75
In bulk	70.00

Large Rivets

(½ in. and larger)

	Base per 100 lb
F.o.b. Pittsburgh, Cleveland, Chicago, Birmingham	$6.75
F.o.b. Lebanon, Pa.	6.75

Small Rivets

(7/16 in. and smaller)

	Pct off List
F.o.b. Pittsburgh, Cleveland, Chicago, Birmingham	48

Cap and Set Screws

(In packages)	Pct Off List
Hexagon head cap screws, coarse or fine thread, up to and incl. 1 in. x 6 in., SAE 1020, bright	46
¼ to 1 in. x 6 in., SAE (1035), heat treated	35
Milled studs	19
Flat head cap screws, listed sizes	5
Fillister head cap, listed sizes	28

C-R SPRING STEEL

Base per pound f.o.b. mill

0.26 to 0.40 carbon	4.00¢
0.41 to 0.60 carbon	5.50¢
0.61 to 0.80 carbon	6.10¢
0.81 to 1.05 carbon	8.05¢
1.06 to 1.35 carbon	10.35¢

Worcester, add 0.30¢.

LAKE SUPERIOR ORES

(51.50% Fe; natural content, delivered lower lake ports)

	Per gross ton
Old range, bessemer	$7.60
Old range, nonbessemer	7.45
Mesabi, bessemer	7.35
Mesabi, nonbessemer	7.20
High phosphorus	7.20

After Dec. 31, 1948, increases or decreases in Upper Lake freight, dock and handling charges and taxes thereon to be for the buyers' account.

RAILS, TRACK SUPPLIES

F.o.b. mill

Standard rails, 100 lb and heavier, No. 1 quality, per 100 lb	$3.40
Joint bars, per 100 lb	4.40
Light rails, per 100 lb	3.75

	Base Price cents per lb
Track spikes†	5.35
Axles	5.25
Screw spikes	8.00
Tie plates	4.20
Tie plates, Pittsburgh, Torr., Calif.*	4.35
Track bolts, untreated	8.25
Track bolts, heat treated, to railroads	8.50

* Seattle, add 30¢.
† Kansas City, 5.60¢.

PRODUCING POINTS—*Standard rails:* Bessemer, Pa., 1; Ensley, Ala., 11; Gary, 1; Indiana Harbor, Ind., 8; Lackawanna, N. Y., 3; Minnequa, Colo., 14; Steelton, Pa., 3.

Light rails: All the above except Indiana Harbor and Steelton, plus Fairfield, Ala., 11; Johnstown, Pa. 3; Minnequa, Colo., 14.

Joint bars: Bessemer, Pa., 1; Fairfield, Ala., 11; Indiana Harbor, Ind., 8; Joliet, Ill., 1; Lackawanna, N. Y., 3; Steelton, Pa., 3; Minnequa, Colo., 14.

Track spikes: Fairfield, Ala., 11; Indiana Harbor, Ind., 6, 8; Lebanon, Pa., 3; Minnequa, Colo., 14; Pittsburgh, 5; Chicago, 4; Struthers, Ohio, 6; Youngstown, 4.

Track bolts: Fairfield, Ala., 11; Lebanon, Pa., 3; Minnequa, Colo., 14; Pittsburgh, 77, 78.

Axles: Fairfield, Ala., 11; Gary, 1; Indiana Harbor, Ind., 79; Johnstown, Pa., 3; McKees Rocks, Pa., 1.

Tie plates: Fairfield, Ala., 11; Gary, 1; Indiana Harbor, Ind., 8; Lackawanna, N. Y., 3; Pittsburgh, Calif., 24; Pittsburgh, 4; Seattle, 62; Steelton, Pa., 3; Torrance, Calif., 24; Minnequa, Colo., 14.

TOOL STEEL

F.o.b. mill

W	Cr	V	Mo	Co	Base per lb
18	4	1	—	—	90.5¢
18	4	1	—	5	$1.42
18	4	2	—	—	$1.025
1.5	4	1.5	8	—	65¢
6	4	2	6	—	69.5¢

High-carbon-chromium	52¢
Oil hardened manganese	29¢
Special carbon	26.5¢
Extra carbon	22¢
Regular carbon	19¢

Warehouse prices on and east of Mississippi are 2½¢ per lb higher. West of Mississippi, 4½¢ higher.

COKE

	Net Ton
Furnace, beehive (f.o.b. oven) Connellsville, Pa.	$13.50 to $14.50
Foundry, beehive (f.o.b. oven) Connellsville, Pa.	$15.50 to $16.00
Foundry, oven coke	
Buffalo, del'd	$20.90
Chicago, f.o.b.	20.40
Detroit, f.o.b.	19.40
New England, del'd	22.70
Seaboard, N. J., f.o.b.	22.00
Philadelphia, f.o.b.	20.45
Swedeland, Pa., f.o.b.	20.40
Plainesville, Ohio, f.o.b.	20.90
Erie, del'd	$20.25 to 21.04
Cleveland, del'd	22.62
Cincinnati, del'd	21.71
St. Paul, f.o.b.	23.50
St. Louis, del'd	21.60
Birmingham, del'd	18.75

FLUORSPAR

Washed gravel fluorspar, f.o.b. cars, Rosiclare, Ill. Base price, per ton net: Effective CaF, content:

70% or more	$37.00
60% or less	34.00

STAINLESS STEELS

Base prices, in cents per pound, f.o.b. producing point

Product	301	302	303	304	316	321	347	410	416	430
Ingots, rerolling	12.75	13.50	15.00	14.50	22.75	18.25	20.00	11.25	13.75	11.50
Slabs, billets, rerolling	17.00	18.25	20.25	19.25	30.25	24.50	26.75	15.00	18.50	15.25
Forg. discs, die blocks, rings	30.50	30.50	33.00	32.00	49.00	38.50	41.00	24.50	25.00	25.00
Billets, forging	24.25	24.25	26.25	25.50	39.00	29.00	32.75	19.50	20.00	20.00
Bars, wire, structurals	28.50	28.50	31.00	30.00	46.00	34.00	38.50	23.00	23.50	23.50
Plates	32.00	32.00	34.00	34.00	50.50	39.50	44.00	26.00	26.50-27.00	26.50
Sheets	37.50	37.50	39.50	39.50	53.00	45.50	50.00	33.00	33.50	35.50
Strip, hot-rolled	24.25	25.75	30.00	27.75	46.00	34.50	38.75	21.25	28.00	21.75
Strip, cold-rolled	30.50	33.00	36.50	35.00	56.00	44.50	48.50	27.00	33.50	27.50

Numbers correspond to producers. See Key on Steel Price Page.

STAINLESS STEEL PRODUCING POINTS—*Sheets:* Midland, Pa., 17; Brackenridge, Pa., 28; Butler, Pa., 7; McKeesport, Pa., 1; Washington, Pa., 38, 39; Baltimore, 37; Middletown, Ohio, 7; Massillon, Ohio, 4; Gary, 1; Bridgeville, Pa., 59; New Castle, Ind., 55; Lockport, N. Y., 46.

Strip: Midland, Pa., 17; Cleveland, 2; Carnegie, Pa., 41; McKeesport, Pa., 54; Reading, Pa., 36; Washington, Pa., 38; W. Leechburg, Pa., 28; Bridgeville, Pa., 59; Detroit, 47; Massillon, Canton, Ohio, 4; Middletown, Ohio, 7; Harrison, N. J., 49; Youngstown, 48; Lockport, N. Y., 46; New Britain, Conn., 58; Sharon, 13; Butler, Pa., 7.

Bars: Baltimore, 7; Duquesne, Pa., 1; Munhall, Pa., 1; Reading, Pa., 36; Titusville, Pa., 59; Washington, Pa., 39; McKeesport, Pa., 1, 54; Bridgeville, Pa., 59; Dunkirk, N. Y., 28; Massillon, Ohio, 4; Chicago, 1, 67; Syracuse, N. Y., 17; Watervliet, N. Y., 28; Waukegan, Ill., 2; Lockport, N. Y., 46; Canton, Ohio, 42.

Wire: Waukegan, Ill., 2; Massillon, Ohio, 4; McKeesport, Pa., 54; Bridgeport, Conn., 44; Chicago, 67; Trenton, N. J., 45; Harrison, N. J., 80; Baltimore, 7; Dunkirk, 28.

Structurals: Baltimore, 7; Massillon, Ohio, 4; Chicago, 1, 67; Watervliet, N. Y., 28; Bridgeport, Conn., 44.

Plates: Brackenridge, Pa., 28; Butler, Pa., 7; Chicago, 1; Munhall, Pa., 1; Midland, Pa., 17; New Castle, Ind., 55; Lockport, N. Y., 46; Middletown, 7; Washington, Pa., 39; Cleveland, Massillon, 4.

Forged discs, die blocks, rings: Pittsburgh, 1, 17; Syracuse, 17; Ferndale, Mich., 28.

Forging billets: Midland, Pa., 17; Baltimore, 7; Washington, Pa., 39; McKeesport, 54; Massillon, Canton, Ohio, 4; Watervliet, 28; Pittsburgh, Chicago, 1.

REFRACTORIES (*F.o.b. works*)

Fire Clay Brick — *Carloads, Per 1000*

First quality, Ill., Ky., Md., Mo., Ohio, Pa. (except Salina, Pa., add $5)	$86.00
No. 1 Ohio	80.00
Sec. quality, Pa., Md., Ky., Mo., Ill.	80.00
No. 2 Ohio	72.00
Ground fire clay, net ton, bulk (except Salina, Pa., add $1.50)	14.00

Silica Brick

Mt. Union, Pa., Ensley, Ala.	$86.00
Childs, Pa.	90.00
Hays, Pa.	91.00
Chicago District	95.00
Western, Utah and Calif.	101.00
Super Duty, Hays, Pa., Athens, Tex., Chicago	106.00
Silica cement, net ton, bulk, Eastern (except Hays, Pa.)	15.00
Silica cement, net ton, bulk, Hays, Pa.	17.00
Silica cement, net ton, bulk, Ensley, Ala.	16.00
Silica cement, net ton, bulk, Chicago District	16.00
Silica cement, net ton, bulk, Utah and Calif.	22.50

Chrome Brick — *Per Net Ton*

Standard chemically bonded, balt., Chester	$69.00

Magnesite Brick

Standard, Baltimore	$91.00
Chemically bonded, Baltimore	80.00

Grain Magnesite — *Std. ⅝-in. grains*

Domestic, f.o.b. Baltimore, in bulk, fines removed	$56.00 to $56.5¢
Domestic, f.o.b. Chewelah, Wash., in bulk with fines	30.50 to 31.00
in sacks with fines	35.00 to 35.50

Dead Burned Dolomite

F.o.b. producing points in Pennsylvania, West Virginia and Ohio, per net ton, bulk, Midwest, add 10¢; Missouri Valley, add 20¢	$12.25

METAL POWDERS

Per pound, f.o.b. shipping point, in ton lots, for minus 100 mesh.

Swedish sponge iron c.l.f. New York, ocean bags	7.4¢ to 9.0¢
Domestic sponge iron, 98+% Fe, carload lots	9.0¢ to 15.0¢
Electrolytic iron, annealed, 99.5+% Fe	31.5¢ to 39.5¢
Electrolytic iron unannealed, minus 325 mesh, 99+% Fe	48.5¢
Hydrogen reduced iron, minus 300 mesh, 98+% Fe	63.0¢ to 80.0¢
Carbonyl iron, size 5 to 10 microns, 98%, 99.8+% Fe	90.0¢ to $1.75
Aluminum	29.00¢
Antimony	45.78¢
Brass, 10 ton lots	23.25¢ to 26.75¢
Copper, electrolytic	28.625¢
Copper, reduced	28.50¢
Cadmium	$2.40
Chromium, electrolytic, 99% min.	$3.50
Lead	18.50¢
Manganese	55.00¢
Molybdenum, 99%	$2.65
Nickel, unannealed	61.00¢
Nickel, spherical, minus 30 mesh, unannealed	68.00¢
Silicon	34.00¢
Solder powder	8.5¢ plus metal cost
Stainless steel, 302	75.00¢
Tin	90.00¢
Tungsten, 99%	$2.90
Zinc, 10 ton lots	15.50¢ to 18.25¢

ELECTRODES

Cents per lb, f.o.b. plant, threaded electrodes with nipples, unboxed

Diam. in in.	Length in in.	Cents Per lb
	GRAPHITE	
17, 18, 20	60, 72	16.00¢
8 to 16	48, 60, 72	16.50¢
7	48, 60	17.75¢
6	48, 60	19.00¢
4, 5	40	19.50¢
3	40	20.50¢
2½	24, 30	21.00¢
2	24, 30	23.00¢
	CARBON	
40	100, 110	7.50¢
35	65, 110	7.50¢
30	65, 84, 110	7.50¢
24	72 to 104	7.50¢
17 to 20	84, 90	7.50¢
14	60, 72	8.00¢
10, 12	60	8.25¢
8	60	8.50¢

PIPE AND TUBING

Base discounts, f.o.b. mills
Base price, about $200.00 per net ton

Standard, T & C

Steel, buttweld*	Black	Galv
½-in.	40½ to 38½	24 to 22
¾-in.	43½ to 41½	28 to 26
1-in.	46 to 44	31 to 29
1¼-in.	46½ to 44½	31½ to 29½
1½-in.	47 to 45	32 to 30
2-in.	47½ to 45½	32½ to 30½
2½ to 3-in.	48 to 46	33 to 31
Steel, lapweld		
2-in.	37	23½ to 21½
2½ to 3-in.	41 to 40	25½ to 24½
3½ to 6-in.	44 to 40	28½ to 24½
Steel, seamless		
2-in.	36	20½
2½ to 3-in.	39	23½
3½ to 6-in.	41	25½
Wrought Iron, buttweld		
½-in.	+20½	+47
¾-in.	+10½	+36
1 & 1¼ in.	+ 4½	+27
2-in.	— 1½	+23½
3-in.	— 2	+23
Wrought Iron, lapweld		
2-in.	+ 7½	+31
2½ to 3½-in.	+ 5	+26½
4-in.	list	+20½
4½ to 8-in.	+ 2	+22

Extra Strong, Plain Ends

Steel, buttweld		
½-in.	39½ to 37½	24½ to 22½
¾-in.	43½ to 41½	28½ to 26½
1-in.	45½ to 43½	31½ to 29½
1¼-in.	46 to 44	32 to 30
1½-in	46½ to 44½	32½ to 30½
2-in	47 to 45	33 to 32
2½ to 3-in.	47½ to 45½	33½ to 31½
Steel, lapweld		
2-in.	37 to 36	22½ to 21½
2½ to 3-in.	42 to 40	27½ to 25½
3½ to 6-in.	45½ to 41½	31 to 29
Steel, seamless		
2-in	35	20½
2½ to 3-in.	39	24½
3½ to 6-in.	42½	28
Wrought Iron, buttweld		
½-in.	+16	+40
¾-in.	+ 9½	+34
1 to 2-in.	— ½	+23
Wrought Iron, lapweld		
2-in.	+ 4½	+27½
2½ to 4-in.	— 5	+16
4½ to 6-in.	— 1	+20½

For threads only, buttweld, lapweld and seamless pipe, one point higher discount (lower price) applies. For plain ends, buttweld, lapweld and seamless pipe 3-in. and smaller, three points higher discount (lower price) applies, while for lapweld and seamless 3½-in. and larger four points higher discount (lower price) applies. On buttweld and lapweld steel pipe, jobbers are granted a discount of 5 pct. *Fontana, Calif., deduct 11 points from figures in left columns.

BOILER TUBES

Seamless steel and electric welded commercial boiler tubes and locomotive tubes, minimum wall. Prices per 100 ft at mill in carload lots, cut lengths 4 to 24 ft inclusive.

OD in.	Gage BWG	Seamless H.R.	Seamless C.R.	Electric Weld* H.R.	Electric Weld* C.D.
2	13	$20.61	$24.24	$18.60	$21.89
2½	12	27.71	32.58	25.02	29.41
3	12	30.82	36.27	27.82	32.74
3½	11	38.52	45.38	34.78	40.94
4	10	47.82	56.25	43.17	50.78

* New prices not yet announced.

CAST IRON WATER PIPE

Per net ton

6 to 20-in., del'd Chicago	$95.70
6 to 24-in., del'd N. Y.	$92.50 to 97.40
6 to 24-in., Birmingham	82.50
6-in. and larger, f.o.b. cars, San Francisco, Los Angeles, for all rail shipment; rail and water shipment less	109.30

Class "A" and gas pipe, $5 extra. 4-in. pipe is $5 a ton above 6-in.

These prices do not reflect latest price increases.

WAREHOUSE PRICES

Base prices, f.o.b. warehouse, dollars per 100 lb. (Metropolitan area delivery, add 15c to base price except Cincinnati and New Orleans (*), add 10c; New York, Chicago and Boston, add 20c).

CITIES	SHEETS			STRIP		PLATES	SHAPES	BARS		ALLOY BARS			
	Hot-Rolled	Cold-Rolled (15 gage)	Galvanized (10 gage)	Hot-Rolled	Cold-Rolled		Standard Structural	Hot-Rolled	Cold-Finished	Hot-Rolled, A 4615 As-rolled	Hot-Rolled, A 4140-50 Ann.	Cold-Drawn, A 4615 As-rolled	Cold-Drawn, A 4140-50 Ann.
Baltimore	5.31	6.21–6.41	6.95–7.11	5.37	....	5.56	5.36	5.42	6.16	....	9.60–10.10	....	....
Birmingham	4.85	5.75	6.15	4.85	....	5.10	4.90	4.90	6.59	....	....	....	....
Boston	5.55	6.45–6.75	7.11–7.61	5.60	6.75	5.75	5.42	5.52	6.02	9.36–9.67	9.67–9.87	10.72	11.02
Buffalo	4.85	5.75	7.42–7.57	5.24	7.27	5.35	5.00	4.95	5.40	9.30	9.60	10.65	10.95
Chicago	4.85	5.75	6.85	4.85	5.45–6.15	5.10	4.90	4.90	5.40	8.90	9.20	10.25	10.55
Cincinnati*	5.16–5.51	5.84–6.28	6.59–6.93	5.28–5.43	....	5.53–5.85	5.33	5.33–5.48	6.08–6.20	9.74	9.99	11.19	11.44
Cleveland	4.85	5.75	6.70	5.03	....	5.21	5.01	5.01	5.45	9.05	9.35	10.40	10.70
Detroit	5.28–5.32	6.07–6.18	7.38–7.58	5.27–5.47	6.27–6.58	5.52–5.57	5.33–5.40	5.33–5.55	6.00–6.10	9.67	9.92	11.11	11.35
Houston	6.70–6.95	....	7.30	6.70	....	6.70	6.20–6.70	6.40–6.65	7.60	10.45	10.40	11.45	11.70
Indianapolis	5.29	6.13	7.44	5.29	7.36	5.54	5.34	5.34	6.14	11.25	11.39	....	....
Kansas City	5.50	6.40	7.50	5.50	6.95[5]	5.75	5.55	5.55	6.10	5.55	9.85	10.90	11.20
Los Angeles	5.45[17]	7.00	7.40[17]	5.95[17]	7.35[17]	5.50[17]	5.45[17]	5.60[17]	7.25[6]	9.55[21]	9.75[21]	10.95[21]	11.35[21]
Memphis	5.75	6.60	7.20	5.80–5.95	6.80	5.95–6.00	5.75	5.75	6.53	....	....	....	....
Milwaukee	5.03	5.93	7.02	5.03–5.38	6.32	5.28	5.08	5.08	5.63	9.08	9.38	10.43	10.73
New Orleans*	5.95	6.75	....	6.15	....	6.15	5.95	5.95	6.65[6]	....	....	....	....
New York	5.40	6.31	6.85–6.90	5.62	6.76	5.65	5.33	5.57	6.31	9.28	9.58	10.63	10.93
Norfolk	6.00	....	....	6.20	....	6.05	6.05	6.05	7.05	....	....	....	....
Omaha	6.13	....	8.33	6.13	....	6.38	6.18	6.18	6.98	....	....	....	....
Philadelphia	4.95	6.24[13]	6.63	5.40	6.29	5.35	5.10	5.40	5.98	9.05	9.35	10.62	10.87
Pittsburgh	4.85	5.75	6.90	5.00	6.00	5.05	4.90	4.90	5.40	8.90	9.20	10.25	10.55
Portland	6.50[8]	8.00	8.80–9.10	6.85[8]	....	6.30[8]	6.35[8]	6.35[8]	8.25[14]	10.50[6]	10.10[6]	....	....
Salt Lake City	7.05	7.05	8.65	7.45[3]	....	5.65[3]	5.50[3]	7.10[8]	8.15	....	....	....	....
San Francisco	6.15[8]	7.50[2]	8.65 7.80	6.75[8]	8.25[5]	6.35[8]	5.90[8]	5.90[8]	7.55	9.80	10.00	11.20	11.60
Seattle	6.70[4]	8.15[2]–8.65	8.80 9.30	6.70[4]	....	6.35[4]	6.30[4]	6.20[4]	8.15[14]	....	10.35[15]	....	13.10[1]
St. Louis	7.10 5.22–5.37	6.12–6.27	7.32	5.22	6.68–7.54	5.47	5.27	5.27	5.82	9.27–9.72	9.57–9.97	10.62–11.17	10.92–11.42
St. Paul	5.44	6.19–6.34	7.54–7.64	5.44	6.82	5.64–6.69	5.49	5.49	6.04	9.49	9.79	10.84	11.14

BASE QUANTITIES *Standard unless otherwise keyed on prices.*

Hot-Rolled:
Sheets, strip, plates, shapes and bars, 400 to 1999 lb.

Cold-Rolled:
Sheets, 400 to 1499 lb strip, extras on all quantities. Bars 1000 lb and over.

Alloy Bars:
1000 to 1999 lb.

Galvanized Sheets:
450 to 1499 lb.

Exceptions:
(1) 400 to 1499 lb; (2) 450 to 1499 lb; (3) 300 to 4999 lb; (4) 300 to 9999 lb; (5) 2000 lb and over; (6) 1000 lb and over; (7) 400 to 14,999 lb; (8) 400 lb and over; (9) 500 to 1999 lb; (10) 500 to 999 lb; (11) 400 to 3999 lb; (12) 450 to 3749 lb; (13) 400 to 1999 lb; (14) 1500 lb and over; (15) 1000 to 4999 lb; (16) 4000 lb and over; (17) up to 1999 lb; (18) 1000 to 1499 lb; (19) 1500 to 3499 lb; (20) 6000 lb and over; (21) 2000 to 3999 lb; (22) 2000 to 9999 lb.

PIG IRON PRICES

Dollars per gross ton. Delivered prices do not include 3 pct tax on freight.

PRODUCING POINT PRICES

Producing Point	Basic	No. 2 Foundry	Malleable	Bessemer	Low Phos.
Bethlehem	48.00	48.50	49.90	49.50	.....
Birmingham	38.88	39.38	.....	.....	.....
Buffalo	46.00	46.50	47.00	.....	.....
Chicago	46.00	46.50	46.50	47.00	.....
Cleveland	46.00	46.50	46.50	47.00	51.00
Duluth	46.00	46.50	46.50	47.00	.....
Erie	46.00	46.50	46.50	47.00	.....
Everett	....	50.50	51.00	.....	.....
Granite City	47.90	48.40	48.90	.....	.....
Ironton, Utah	46.00	46.50	.....	.....	.....
Pittsburgh	46.00	46.50	46.50	47.00	.....
Geneva, Utah	46.00	46.50	.....	.....	.....
Sharpsville	46.00	46.50	46.50	47.00	.....
Steelton	48.00	48.50	49.00	49.50	54.00
Struthers, Ohio	46.00	.....	.....	.....	.....
Swedeland	48.00	48.50	49.00	49.50	.....
Toledo	46.00	46.50	46.50	47.00	.....
Troy, N. Y.	48.00	48.50	49.00	....	54.00
Youngstown	46.00	46.50	46.50	47.00	.....

DELIVERED PRICES (BASE GRADES)

Consuming Point	Producing Point	Rail Freight Rate	Basic	No. 2 Foundry	Malleable	Bessemer	Low Phos.
Boston	Everett	$0.50 Arb.	.....	50.50	51.00	.....	.....
Boston	Steelton	6.90	.....	.....	.....	.....	60.90
Brooklyn	Bethlehem	4.29	.....	52.79	53.29	53.79	.....
Cincinnati	Birmingham	6.70	45.58	46.08	.....	.....	.....
Jersey City	Bethlehem	2.63	.....	51.13	51.63	52.13	.....
Los Angeles	Geneva-Ironton	7.70	53.70	54.20	.....	.....	.....
Mansfield	Cleveland-Toledo	3.33	49.33	49.83	49.83	50.33	54.33
Philadelphia	Bethlehem	2.39	50.39	50 89	51.39	51.89	.....
Philadelphia	Swedeland	1.44	49.44	49.94	50.44	50.94	.....
Philadelphia	Steelton	3.09	.....	.....	.....	.....	57.09
Rochester	Buffalo	2.63	48.63	49.13	49.63	.....	.....
San Francisco	Geneva-Ironton	7.70	53.70	54.20	.....	.....	.....
Seattle	Geneva-Ironton	7.70	53.70	54.20	.....	.....	.....
St. Louis	Granite City	0.75 Arb.	48.65	49.15	49.65	.....	.....
Syracuse	Buffalo	3.58	49.58	50.08	50.58	.....	.....

Producing point prices are subject to switching charges; silicon differential (not to exceed 50c per ton for each 0.25 pct silicon content in excess of base grade which is 1.75 to 2.25 pct for foundry iron); phosphorus differentials, a reduction of 25c per ton for phosphorus content of 0.70 pct and over manganese differentials, a charge not to exceed 50c per ton for each 0.50 pct manganese content in excess of 1.00 pct. $2 per ton extra may be charged for 0.5 to 0.75 pct nickel content and $1 per ton extra for each additional 0.25 pct nickel.

Silvery iron (blast furnace) silicon 6.01 to 6.50 pct. C/L per g.t., f.o.b. Jackson, Ohio—$59.50; f.o.b. Buffalo, $60.75. Add $1.00 per ton for each additional 0.50 pct Si up to 17 pct. Add 50c per ton for each 0.50 pct Mn over 1.00 pct. Add $1.00 per ton for 0.75 pct or more P. Bessemer ferrosilicon prices are $1.00 per ton above silvery iron prices of comparable analysis.

Charcoal pig iron base price for low phosphorus $60.00 per gross ton, f.o.b. Lyle, Tenn. Delivered Chicago, $68.56. High phosphorus charcoal pig iron is not being produced.

FERROALLOYS

Ferromanganese

78-82% Mn, maximum contact base price, gross ton, lump size.

F.o.b. Birmingham	$174
F.o.b. Niagara Falls, Alloy, W. Va., Welland, Ont.	$172
F.o.b. Johnstown, Pa.	$174
F.o.b. Sheridan, Pa.	$172
F.o.b. Etna, Clairton, Pa.	$175

$2.00 for each 1% above 82% Mn, penalty, $2.15 for each 1% below 78%.

Briquets—Cents per pound of briquet, delivered, 66% contained Mn.

Carload, bulk	10.45
Ton lots	12.05
Less ton lots	12.95

Spiegeleisen

Contract prices gross ton, lump, f.o.b.

	16-19% Mn 3% max. Si	19-21% Mn 3% max. Si
Palmerton, Pa.	$64.00	$65.00
Pgh. or Chicago	65.00	66.00

Manganese Metal

Contract basis, 2 in. x down, cents per pound of metal, delivered.

96% min. Mn, 0.2% max. C, 1% max. Si, 2% max. Fe.

Carload, packed	35.5
Ton lots	37.0

Electrolytic Manganese

F.o.b. Knoxville, Tenn., freight allowed east of Mississippi, cents per pound.

Carloads	28
Ton lots	30
Less ton lots	32

Low-Carbon Ferromanganese

Contract price, cents per pound Mn contained, lump size, delivered.

	Carloads	Ton	Less
0.07% max. C, 0.06% P, 90% Mn	25.25	27.10	28.30
0.10% max. C	24.75	26.60	27.80
0.15% max. C	24.25	26.10	27.30
0.30% max. C	23.75	25.60	26.80
0.50% max. C	23.25	25.10	26.30
0.75% max. C, 7.00% max. Si	20.25	22.10	23.30

Silicomanganese

Contract basis, lump size, cents per pound of metal, delivered, 65-68% Mn, 18-20% Si, 1.5% max. C. For 2% max. C, deduct 0.2¢.

Carload bulk	8.95
Ton lots	10.60
Briquet, contract basis carlots, bulk delivered, per lb of briquet	10.30
Ton lots	11.90
Less ton lots	12.80

Silvery Iron (electric furnace)

Si 14.01 to 14.50 pct, f.o.b. Keokuk, Iowa, or Wenatchee, Wash., $77.00 gross ton, freight allowed to normal trade area; Si 15.01 to 15.50 pct, f.o.b. Niagara Falls, N. Y., $73.50. Add $1.00 per ton for each additional 0.50% Si up to and including 18%. Add $1.00 for each 0.50% Mn over 1%.

Silicon Metal

Contract price, cents per pound contained Si, lump size, delivered, for ton lots packed.

96% Si, 2% Fe	20.70
97% Si, 1% Fe	21.10

Silicon Briquets

Contract price, cents per pound of briquet, bulk, delivered, 40% Si, 1 lb Si briquets.

Carload, bulk	6.30
Ton lots	7.90
Less ton lots	8.80

Electric Ferrosilicon

Contract price, cents per pound contained Si, lump size, bulk, in carloads, delivered.

25% Si	17.00
50% Si	11.30
75% Si	13.50
85% Si	14.65
90-95% Si	16.50

Calcium Metal

Eastern zone contract prices, cents per pound of metal, delivered.

	Cast	Turnings	Distilled
Ton lots	$2.05	$2.95	$3.75
Less ton lots	2.40	3.30	4.55

Ferrochrome

Contract prices, cents per pound, contained Cr, lump size, bulk, in carloads, delivered. (65-72% Cr, 2% max. Si)

0.06% C	28.75
0.10% C	28.25
0.15% C	28.00
0.20% C	27.75
0.50% C	27.50
1.00% C	27.25
2.00% C	27.00
65-69% Cr, 4-9% C	20.50
62-66% Cr, 4-6% C, 6-9% Si	21.35

Briquets — Contract price, cents per pound of briquet, delivered, 60% chromium.

Carload bulk	13.75
Ton lots	15.25
Less ton lots	16.15

High-Nitrogen Ferrochrome

Low-carbon type: 67-72% Cr, 0.75% N. Add 5¢ per lb to regular low carbon ferrochrome price schedule. Add 5¢ for each additional 0.25% N.

S. M. Ferrochrome

Contract price, cents per pound chromium contained, lump size, delivered.

High carbon type: 60-65% Cr, 4-6% Si, 4-6% Mn, 4-6% C.

Carloads	21.60
Ton lots	23.75
Less ton lots	25.25

Low carbon type: 62-66% Cr, 4-6% Si, 4-6% Mn, 1.25% max. C.

Carloads	27.75
Ton lots	30.05
Less ton lots	31.85

Chromium Metal

Contract prices, per lb chromium contained packed, delivered, ton lots. 97% min. Cr, 1% max. Fe.

0.20% max. C	$1.09
0.50% max. C	1.05
9.00% min. C	1.04

Calcium-Silicon

Contract price per lb of alloy, lump, delivered.

30-33% Ca, 60-65% Si, 3.00% max. Fe.

Carloads	17.90
Ton lots	21.00
Less ton lots	22.50

Calcium-Manganese—Silicon

Contract prices, cents per lb of alloy, lump, delivered.

16-20% Ca, 14-18% Mn, 53-59% Si.

Carloads	19.25
Ton lots	21.55
Less ton lots	22.55

CMSZ

Contract price, cents per pound of alloy, delivered.

Alloy 4: 45-49% Cr, 4-6% Mn, 18-21% Si, 1.25-1.75% Zr, 3.00-4.5% C.

Alloy 5: 50-56% Cr, 4-6% Mn, 13.50-16.00% Si, 0.75 to 1.25% Zr, 3.50-5.00% C.

Ton lots	19.75
Less ton lots	21.00

V Foundry Alloy

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis. V-5: 38-42% Cr, 17-19% Si, 8-11% Mn.

Ton lots	15.75¢
Less ton lots	17.00¢

Graphidox No. 4

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis. Si 48 to 52%, Ti 9 to 11%, Ca 5 to 7%.

Carload packed	17.00¢
Ton lots to carload packed	18.00¢
Less ton lots	19.50¢

SMZ

Contract price, cents per pound of alloy, delivered. 60-65% Si, 5-7% Mn, 5-7% Zr, 20% Fe, ½ in. x 12 mesh.

Ton lots	17.25
Less ton lots	18.50

Other Ferroalloys

Alsifer, 20% Al, 40% Si, 40% Fe, contract basis, f.o.b. Suspension Bridge, N. Y.	
Carload	7.40¢
Ton lots	8.80¢
Calcium molybdate, 45-50%, f.o.b. Langeloth, Pa., per pound contained Mo.	96¢
Ferrocolumbium, 50-60% contract basis, delivered, per pound contained Cb.	
Ton lots	$2.90
Less ton lots	2.95
Ferromolybdenum, 55-75%, f.o.b. Langeloth, Pa., per pound contained Mo.	$1.10
Ferrophosphorus, electrolytic, 23-26%, carlots, f.o.b. Siglo, Mt. Pleasant, Tenn., $3 unitage, per gross ton	$65.00
10 tons to less carload	75.00
Ferrotitanium, 40%, regular grade, 0.10% C max., f.o.b. Niagara Falls, N. Y., and Bridgeville, Pa., freight allowed east of Mississippi and north of Baltimore, ton lots, per lb contained Ti	$1.23
Ferrotitanium, 25%, low carbon, 0.10% C max., f.o.b. Niagara Falls, N. Y., and Bridgeville, Pa., freight allowed east of Mississippi and north of Baltimore, ton lots, per lb contained Ti	$1.40
Less ton lots	1.45
Ferrotitanium, 15 to 19%, high carbon, f.o.b. Niagara Falls, N. Y., freight allowed east of Mississippi and north of Baltimore, carloads per net ton	$160.00
Ferrotungsten, standard, lump or ¼ x down, packed, per pound contained W, 5 ton lots, delivered	$2.25
Ferrovanadium, 35-55%, contract basis, delivered, per pound, contained V.	
Openhearth	$2.90
Crucible	3.00
High speed steel (Primos)	3.10
Molybdenum oxide briquets, f.o.b. Langeloth, Pa.; bags, f.o.b. Wash., Pa., per lb contained Mo.	95¢
Simanal, 20% Si, 20% Mn, 20% Al, contract basis, f.o.b. Philo, Ohio, freight allowed, per pound	
Carload, bulk, lump	11.00¢
Ton lots, bulk, lump	11.50¢
Ton lots, packed, lump	11.75¢
Less ton lots, lump	12.25¢
Vanadium pentoxide, 88-92% V_2O_5 contract basis, per pound contained V_2O_5	$1.20
Zirconium, 35-40%, contract basis, f.o.b. plant, freight allowed, per pound of alloy.	
Ton lots	21.00¢
Zirconium, 12-15%, contract basis, lump, delivered, per lb of alloy.	
Carload, bulk	6.60¢

Boron Agents

Contract prices, per lb of alloy, del.

Borosil, f.o.b. Philo, Ohio, freight allowed, B 3-4%, Si 40-45%, per lb contained B	$4.25
Bortam, f.o.b. Niagara Falls	
Ton lots, per pound	45¢
Less ton lots, per pound	50¢
Carbortam, f.o.b. Suspension Bridge, N. Y.; freight allowed, Ti 15-18%, B 1.00-1.50%, Si 2.5-3.0%, Al 1.0-2.0%.	
Ton lots, per pound	8.625¢
Ferroboron, 17.50% min. B, 1.50% max. Si, 0.50% max. Al, 0.50% max. C, 1 in. x D. Ton lots	$1.20
F.o.b. Wash., Pa.; 100 lb and over	
10 to 14% B.	.75
14 to 19% B.	1.20
19% min. B.	1.50
Grainal, f.o.b. Bridgeville, Pa. freight allowed, 100 lb and over.	
No. 1	93¢
No. 6	63¢
No. 79	45¢
Manganese—Boron 75.00% Mn, 15-20% B, 5% max. Fe, 1.50% max. Si, 3.00% max. C, 2 in. x D, delivered.	
Ton lots	$1.67
Less ton lots	1.79
Nickel—Boron 15-18% B, 1.00% max. Al, 1.50% max. Si, 0.50% max. C, 3.00% max. Fe, balance Ni, delivered.	
Less ton lots	$1.80
Silcaz, contract basis, delivered	
Ton lots	45.00¢

METAL INDUSTRY FACTS

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METAL INDUSTRY FACTS INDEX

Continued

R

S

Distribution Improvements Loom as Big Immediate Problem

Next 50 years may be called the age of distribution.

Philadelphia—Improvements in distribution loom as a major problem for American industry in the coming year and the next half-century, William L. Batt, president of SKF Industries, Inc., said here in a year-end statement.

The next 50 years may go down in history as the age of distribution, Mr. Batt indicated, emphasizing that significant political and economic events may hinge upon industry's finding better ways to sell and find new markets for all the things it can make.

He pointed out that during the first half of this century, we have learned how to develop full productive capacity, and yet most of the basic requirements of the world's population have not been met. We have bumper crops and record production in one part of the world while another suffers from famine and destitution.

The objective of better distribution is one that can enlist the full support of business and political leaders, Batt declared. If our present political structure is to survive in anything close to its traditional form, the big problem of distributing all we can make must be solved.

Sees Business Steady

As far as the country's economy is concerned, Batt stated, there is every reason to expect that business will hold its own during 1950. A convenient gage to the overall state of business is provided by the ball and roller bearing industry, he pointed out, which supplies essential components to virtually every type of industrial undertaking.

According to this gage prospects for the coming year are encouraging, though the probability is that the gradual decline from the postwar peaks which began in late 1948 and continued through the current year will still be felt in 1950.

Present conditions in the ball and roller bearing industry, said

Batt, provide a basis for estimating that the national income for 1950 will come close to the 1949 total of some $225 billion.

Sees Gains Continuing

The economic barometer has been moving gradually upward in the last few months, according to Mr. Batt. Though progress may be slower in the year ahead, he feels that overall gains should continue to be made well into 1951. Our productive system today is as strong, if not stronger, than ever. The big problem is to find satisfactory answers to such questions as how to boost sales and keep distribution costs in line.

Distribution is the key. The degree to which industry can find suitable solutions to the problem of better things for more people will exert a profound influence on events in the last half of the 20th century.

Study Emergency Shipping

Washington—What to do about ocean shipping in the event of an emergency is receiving the official attention of the National Security Board whose representatives met here last week with representatives of Canada, and maritime nations of western Europe.

The NSRB has been studying shipping availabilities and requirements under emergency conditions. It will try to work out and develop the best technique for control and operations of such shipping.

The meeting, first to follow informal talks among the nations on the subject, was attended by officials from Canada, United Kingdom, Belgium, Denmark, France, Italy, Netherlands, and Norway.

Buys Government Aluminum Plant

Salem, Ore.—The aluminum plant which was built by the government at a cost of approximately $5½ million during the war has been sold to Manganese Products, Inc. of Seattle for $750,000. It is reported that the purchaser is arranging financing.

HALLOWELL — *Investment in Usefulness*

Few pieces of plant equipment offer so much actual *usefulness* per dollar invested as "HALLOWELL" Work Benches.

Because they are *ready-made*, standardized and easily assembled, "HALLOWELL" Benches of Steel eliminate the trouble and expense of "building your own", providing a convenient and economical means of giving your workers the adequate and well-planned work space so necessary for maximum productivity.

"HALLOWELL" Benches are made in standardized, interchangeable units, a feature of particular value in plant layout and planning. Four standard style variations, three top materials, four stock length units, three widths and three standard heights offer the plant engineer a large number of possible combinations that can be adapted to almost any individual requirement. Furthermore, single "HALLOWELL" Benches can be bolted together to form a long, continuous bench, which at any time may be taken down and reassembled as individual units.

Simple and functional in design, Ready-Made "HALLOWELL" Benches of Steel present an attractive, clean-cut appearance that does credit to any plant, and which tends to improve worker performance and encourage better plant housekeeping. And because of their extra-rigid, heavy-duty construction, they need no costly bolting to the floor, and therefore the installation and maintenance costs are minimized and long, trouble-free service assured.

If you use work benches, the "HALLOWELL's" *extra* usefulness can be an important factor in keeping production and product quality at peak levels in your plant.

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"HALLOWELL Counts with the Men Who Count"

Pittsburgh Area Shows 10-Year Gain as Industrial Center

Metal industry continues to dominate the employment picture.

Pittsburgh — The four-county area with Pittsburgh as its "capital" city has made "substantial gains" as an industrial center in the last 10 years, according to a study released by the Allegheny Conference on Community Development.

The study covers the counties of Allegheny, Westmoreland, Washington and Beaver.

Metals and metal industries continue to dominate the industrial picture here, employing 65 pct of the total workers in 1948, as compared to 60 pct of the total in 1939. In numbers, the metals industry employed approximately 170,000 in 1939, compared to about 260,000 in 1938. All other industries employed about 115,000 in 1939 and approximately 140,000 in 1948.

Employment Gains Noted

Total industrial employment in 1948 was 41.5 pct higher than in 1939, a decline of about 3500 in the mines and quarries category being the only loss registered. A gain of 60 pct in chemicals and 41 pct in miscellaneous industries was reported.

Female industrial employment was higher by 22,239, an 81 pct increase over the period.

Total industrial wages and salaries paid in 1948 were $1,310,000,000, compared with $428 million in 1939. Wage earners, with a 37 pct increase in number, received 210 pct more dollars, while salaried workers, with a 71 pct increase in number, received 191 pct more dollars.

Number of Firms Increases

The conference made no attempt to adjust for variations in the purchasing power of the dollar or price levels due to lack of a proper index for comparison and the fact that price, wage and other financial changes vary from industry to industry as well as between areas.

Total capital investment of $1,-

803,513,000 in 1948 was approximately 25 pct higher than in 1939. Value of products climbed to a war-time peak of approximately $4 billion, declined to less than $3 billion in 1946 and skyrocketed to an all-time high of $4 billion 727 million in 1948, or roughly triple the 1939 figure.

The report attached significance to the fact that there was an almost constant increase in the number of establishments in the 10-year period, bringing the 1948 total to 3134, of which 1513 were incorporated.

The report was compiled under the direction of J. E. Amos, Conference director of research, with the cooperation of the Pennsylvania Department of Internal Affairs. It is being made available to business leaders for use as a basis for future planning.

Will Move General Offices

Birmingham — The Tennessee Coal, Iron & R. R. Co., U. S. Steel Corp. subsidiary, is moving its general offices from downtown Birmingham to Fairfield—a municipality adjoining Birmingham.

The Tennessee company will move from the Brown-Marx Bldg. to a $6 million building to be constructed by the Flintridge Corp., headed by John W. Galbreath of Columbus, Ohio.

The four-story building will be rented to the Tennessee company and two other U. S. Steel subsidiaries—Birmingham-Southern R. R. Co., and Union Supply Co.

Robert Gregg, TCI president, said the company had outgrown the space in its present general offices in Birmingham, that the new offices would be near the company's principal operations, and that "this move has had a paramount part in our long-range plans for many years."

The new building, to be built near Fairfield Steel works, will have more than 300 individual offices. It will be 580 ft long across the front and 210 ft from front to rear. It is expected that the new office quarters will be ready for occupancy before June 30, 1951.

The HOUGHTON LINE NEWS

Published by E. F. Houghton & Co., pioneers in heat treating and metal processing products since 1865

REG. U. S. PAT. OFF.

VOL. 17, NO. 6 JANUARY, 1950

...the "near editor's" viewpoint...

Whose ox is being gored makes a big difference. We notice that many people who are indifferent to the duPont case ("What's Wrong With Bigness?"—Sept. LINE) are greatly worked up over the government suit against A. & P. stores.

A friend of ours who is no friend of Scotch whisky contends that it is blended with alcohol and creosote. Research from this desk fails to prove it, although of course the creosote may be added in the dark of the moon by the night watchman.

A man's executive ability may be at the peak at 65, when he is eligible for retirement. Argument is that if 65ers stay on the job, they bar the progress of young and able men wanting to move up. Should we quit and get out of their way?

Aaron E. Carpenter

PRESIDENT.

A Keg in Three Draws

When the waiter shouts "Draw One," the foaming lager he gets is likely, these days, to come from an aluminum beer keg, light in weight, low in cost, non-corrosive and almost indestructible.

Kegs are drawn in halves, in three operations from flat aluminum sheets, on which *Houghto-Draw 453* is used as a drawing lubricant. One application lasts through the 3 draws, although 2 or 3 days may elapse between successive draws. The same 500-ton HPM press is used for all operations. The half-kegs are then welded together.

The drawing compound is an oil-type product specially treated for high film strength and adhesion. It is not water-soluble . . . contains no pigments. Full details on request.

Jack Up Your Troubles

Have you experienced difficulty in cleaning carburized parts before electro-plating? Maybe it's the carburizer that's hard to remove. That was what a manufacturer of automobile bumper jacks found, so he turned to the use of *Perliton "W,"* a carburizing salt soluble in hot water, hence comes off readily. For Data Sheet, check "E" on coupon.

Hot Oil Quench Arousing Much Interest

Martempering is today an accepted form of quenching to avoid distortion and cracking. It is replacing fixture quenching in many instances, and has proven to be a boon to firms who had trouble holding parts within close dimensional tolerances.

Martempering was at first done in salt at close to the M_s point of the steel—above 400° F. However, there are many concerns who need a hot quench but do not have enough work to warrant special furnace set-ups for a salt bath process.

Houghton has developed a martempering oil which is stable and long-lived at temperatures up to 350° F. Users have found it entirely satisfactory for use as a hot quench for long periods of time.

For example, an automotive manufacturer had trouble with a forging used as a control sleeve for a free wheeling mechanism. He changed the heat treat to a cyanide bath at 1550° F. followed by a *Mar-Temp Oil* quench at 300° F. Dimensions were held accurately, and it was found that parts could be finish ground *before* heat treating. The saving was 7 cents per part.

This is but one example of the economy and efficiency you can expect from Mar-Temp Oil, which is described in a folder you may want us to send you. Check "A" on coupon.

No Clang in this Trolley!

Adequate lubrication in "hot spots" isn't easy to maintain. At the Metal Show Houghton displayed a conveyor trolley that had been in use in a porcelain plant for two years—24% of the time in a 500° oven. Lubricated with our *Hi-Temp Oil* #227 once a week, this trolley ran free, had never been out of service. Folder on Hi-Temp Oils is available. Check "B" on coupon.

Longer LIFE for DIES!

How can die casting scrap losses be reduced? That's a common query among die casters. Houghton's answer is *Mouldlubric,* a silvery-colored paste-type lubricant for dies that results in longer die life and great reduction in scrap. Such intricate castings as the mounting bracket of a Sea Horse outboard engine, made by Johnson Motors and pictured here, are made with the aid of this modern die lubricant. Data Sheet is available—check "C."

Annealing Precious Metals

A new salt bath, which eliminates "fire" (oxidation) deposits on silver, gold, copper or brass being annealed, will be described in the next issue of the "LINE." If interested, ask about *Liquid Heat 1185.*

Saving a Carload

Nuts and bolts are sometimes hard to clean, especially if they have been covered with a thick tarry coating which won't come off in an alkaline cleaning bath. One large maker of this prosaic sort of commodity thought he would have to scrap a carload bought from government surplus, but we suggested he try *Houghto-Clean 220,* an emulsion-type cleaner. Results were perfect—where even a steam blast had previously failed. You, too, can find a place for Houghto-Clean 220; check "D" on coupon for Data Sheet.

Helpful Data—Yours FREE!

1 LIQUID SALT BATH CATALOG—32 pages, with description and working ranges of salts for all types of heat treating.

2 ANTISEP SOLUBLE OIL—unsurpassed for grinding—4 page descriptive leaflet.

3 DRAWING COMPOUNDS BY HOUGHTON—a folder listing six popular press drawing lubricants.

4 "HOT SPOT" LUBRICATION—describing Hi-Temp Oils, mould lubricants, conveyor oils.

5 A NEW ALL-STAR LINE-UP OF RUST PREVENTIVES—8 page booklet listing 11 carefully selected varieties of RUST VETO to combat most corrosion problems.

6 HOUGHTO-SOLV—fuel oil additive that takes sludge into solution, makes messy, costly tank cleaning unnecessary. 6 page folder.

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C-I Ready to Produce Low Carbon Type Stainless Steels

Research in this field began as long ago as 1939.

Pittsburgh—Carnegie-Illinois Steel Corp. is prepared for commercial production of low-carbon (0.03 pct max) stainless steels. These steels, which are especially useful in industry, are made possible through mastery of the details of production and increased knowledge of the basic nature of intergranular corrosion.

Up to the present it has been necessary to add columbium or titanium to austenitic stainless steels as stabilizers to minimize the adverse effects of carbon and thereby render the alloy less susceptible to intergranular corrosion. The supply of these elements is sometimes critical. Consequently conservation is served by avoiding their use unless absolutely necessary.

Research Began in 1939

As early as 1939, Carnegie-Illinois had begun investigations to determine a practical means to manufacture commercially chrome-nickel stainless steels with the lowest possible level of carbon. Concurrently with the development of manufacturing techniques, extensive corrosion-testing programs were set up in Carnegie-Illinois laboratories and in the laboratories of principal customers for this type of steel.

It has taken a decade to prove that the manufacturing techniques are economically sound and to accumulate sufficient corrosion-testing data to justify consumer acceptance of 0.03 pct max C stainless steels for use in many applications in which columbium or titanium stabilized stainless steels were formerly used. Moreover, the testing program has indicated that, on the basis of established standards, the 18-8 steels containing not more than 0.03 pct C have a resistance to intergranular corrosion equivalent to that of 18.8 columbium and titanium stainless steels.

Welding tests have confirmed these results and demonstrated that

the low-carbon 18-8 materials can replace the stabilized types for those applications, such as welding, that involve short heating times in the sensitizing temperature range.

Construction Record Set For Inland Waterway Craft

Chicago — When the complete figures for 1949 are assembled, this year will go down on record as the peak year for the construction of tow boats, barges and other water borne craft for inland waterway use. According to American Waterways Operators, total production for the first 10 months was 127 barges, non-self-propelled, with a gross tonnage of 72,761 tons. Oil barges led the list with 47, hopper barges totaled 44, and others were in the category of acid, tank, cargo, spud and scow. The association also reported that 25 tow boats and tugs were completed during the first 10 months of this year.

Chester C. Thompson, president of American Waterways Operators, said "Most of these modern power unit pusher boats and the big barges they propel are built in a half dozen leading inland shipyards. These boats are super dreadnaughts of the rivers with crew quarters comparable to those found aboard first class passenger liners and every modern aid to navigation such as radar, ship-to-shore radio telephone, complex floodlighting systems and other up-to-date technical advancements."

Barges built last year followed the recent trend of special design. They are designed and built to carry specific chemicals, steel, coal, oil, packaged goods, sugar, sulfur, automobiles and trucks, and many other commodities. Mr. Thompson, in commenting on the record building year, said, "With the great increase in the use of river traffic during the past few years, the shipyards have more than kept pace with the needs of the carriers. They have produced, usually in much quicker time than in the years before, ultra modern tow boats and strong maneuverable barges."

Second New Cobalt Refinery Planned at Cobalt, Ont., in 1950

Refinery would handle rich silver-cobalt ores in this area.

New York—A second new cobalt refinery is expected to be in operation in Cobalt, Ont., some time next year to handle the rich silver-cobalt ores of the district, according to a report published in the *Northern Miner*.

Ownership of the refinery will be held by Continental Salts & Metal Ltd., Toronto, a new company incorporated in Ontario with authorized capitalization of 500,000 shares, $1 par, of which 350,000 shares are expected to be issued by the time refining starts. The company has been organized by Austin B. Pilliner, president of Ausic Mining & Reduction Co. Ltd., who has pioneered a new chemical refining process for cobalt ores. The new process will be licensed to the Continental refinery and will also be made available, under lease, to operators in other countries.

Construction cost of the new plant is estimated at $350,000.

Entirely New Process

The process, it is understood, involves an entirely new approach in the treatment of cobalt ores. Laboratory tests made during the past 15 months at a pilot plant in California have indicated that satisfactory recoveries can be made, though the process has not yet been tried on a commercial scale.

It is a fusion process involving selective chloridization, and is expected to produce a variety of end-products. Refining will involve first the removal of arsenic, sulphur, and the impurities, leaving a compound of the metal contents, and secondly the segregation or separation of the metals. The end-products are to include cobalt (either as metal, oxide, or salts), copper, silver, nickel calcium arsenate, sodium, sulfate, iron oxide, and silica.

In preparation for the start of refining, Ausic Mining and Reduction Co. proposes to go back into production before the end of 1949, stockpiling its concentrates along with the $45,000 worth which have

been on hand since operations were suspended about a year ago. Ausic's most important holdings are the old Genesee and Savage mines, at both of which production can be quickly resumed, Mr. Pilliner points out. The company's 125-ton mill, located on the former Silver Cliff property, is also in shape for resumption. With a 25-1 ratio this mill can turn out 5 tons of concentrates per day, one-half of the planned refinery's capacity.

To insure Continental Salts and Metal of input, plans are being made to reorganize Ausic Mining and Reduction Co within the next couple of months, merging its holdings with those of two other companies.

Hope for Custom Milling

Into the new organization will go all the holdings of Ausic M. & R., as well as the properties of Nerlip Mines Ltd. and Augener Mines Ltd., and a number of other properties held personally by Mr. Pilliner. Nerlip and Augener have both been inactive for some years.

Ausic Mining and Reduction is also contemplating the business of customs milling, and has hopes for a contract which, if completed, would necessitate an increase in the mill's present capacity from 125 to 250 tons. If operations could be raised to and maintained at that rate, the mill could produce the refinery's total concentrates requirements. The management states that such an increase could be effected by increasing the capacity of the crushing unit at a cost of about $30,000, and claims to anticipate no difficulty in finding sufficient ore and concentrates to keep the refinery operating.

Study Effects of Radiation

Washington—The U. S. Public Health Service has begun a study of the health hazards caused by the increased use of radioactive materials in industry.

Dr. Edwin G. Williams, USPHS official, heads a new federal research group which will act as a source of information on radiological health measures.

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Alloy steel gears and pinions with gear teeth generated to greater accuracy. Improved methods of heat-treating give increased strength—longer life.

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A COMPLETE LINE OF HIGH-QUALITY ENCLOSED GEAR DRIVES

ASTE Survey Shows Companies Plan to Buy More Tools in 1950

Larger companies planning biggest increases in purchases.

Detroit—A national survey of projected 1950 purchoses of new machine tools, machine tool accessories, materials handling equipment, etc., made by the American Society of Tool Engineers shows that, of the companies reporting, 80 pct plan to buy either more equipment or the same amount as in 1948.

Conducted in connection with plans for the technical society's Industrial Cost Cutting Exposition in Philadelphia next April, the study was carried on through questionnaires addressed to members of the Society.

Big Companies to Buy More

The returns indicate a number of interesting trends, including the following: The larger companies show the biggest increase in planned purchases. Seventy-nine pct of the companies in this group state that their 1950 purchases will exceed those for 1948. Only 7 pct say they will buy less equipment.

Medium sized companies show the following totals: More than 1948—55 pct; about the same—29 pct; less, or very little—16 pct.

Of the smallest companies, 28 pct state that they will buy more equipment than in 1948. However, an additional 50 pct estimate their planned 1950 purchases as equal to the 1948 level. Twenty-two pct say they will buy less.

For all companies the totals show:

45 pct will buy more than in 1948
35 pct will buy about the same amount
7 pct will buy "less"
13 pct will buy "very little"

Reasons for Expenditures

Of particular interest are the reasons given for these planned capital expenditures, as well as a general breakdown of the type of equipment to be purchased. Following are some of the findings:

Large companies—86 pct plan to buy new machine tools to re-

duce present manufacturing costs.

78 pct plan to buy various types of machine accessories to modernize their existing equipment—again to reduce cost.

57 pct plan to increase their materials handling facilities to reduce costs.

Medium sized companies—75 pct are planning to buy new types of machines to reduce costs.

66 pct plan to buy machine accessories to modernize existing equipment.

48 pct plan on replacing obsolete equipment.

27 pct plan to purchase new materials handling equipment.

Smaller companies—Reasons for purchases of new equipment by smaller companies are fairly evenly divided between new equipment to cut costs, replacement of obsolete equipment and modernizing of existing equipment to cut costs, with the last mentioned showing the highest percentage. In this group 22 pct are planning to buy new materials handling equipment.

All companies—New machines to reduce costs, 64 pct; modernizing of present equipment, 64 pct; replacement of equipment, 54 pct; new materials handling equipment, 27 pct.

Breakdown of Expenditures

Returns from all companies planning to buy "more than than in 1948" have also been analyzed by the ASTE to provide an idea as to how much of the total new-equipment budgets will be used for the various classes of products.

This analysis reveals that 52 pct of the companies will spend the largest portion of their budgets for new machines to cut costs; 26 pct will spend most of their budgets in modernizing existing equipment; 12 pct report that replacement of worn out and obsolete equipment will represent their largest outlay; 10 pct say that materials handling equipment will take the largest portion of their budgets.

A finding of particular interest

Turn to Page 374

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Carbon, copper or alloy analyses
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A.W. Super-Diamond Pattern
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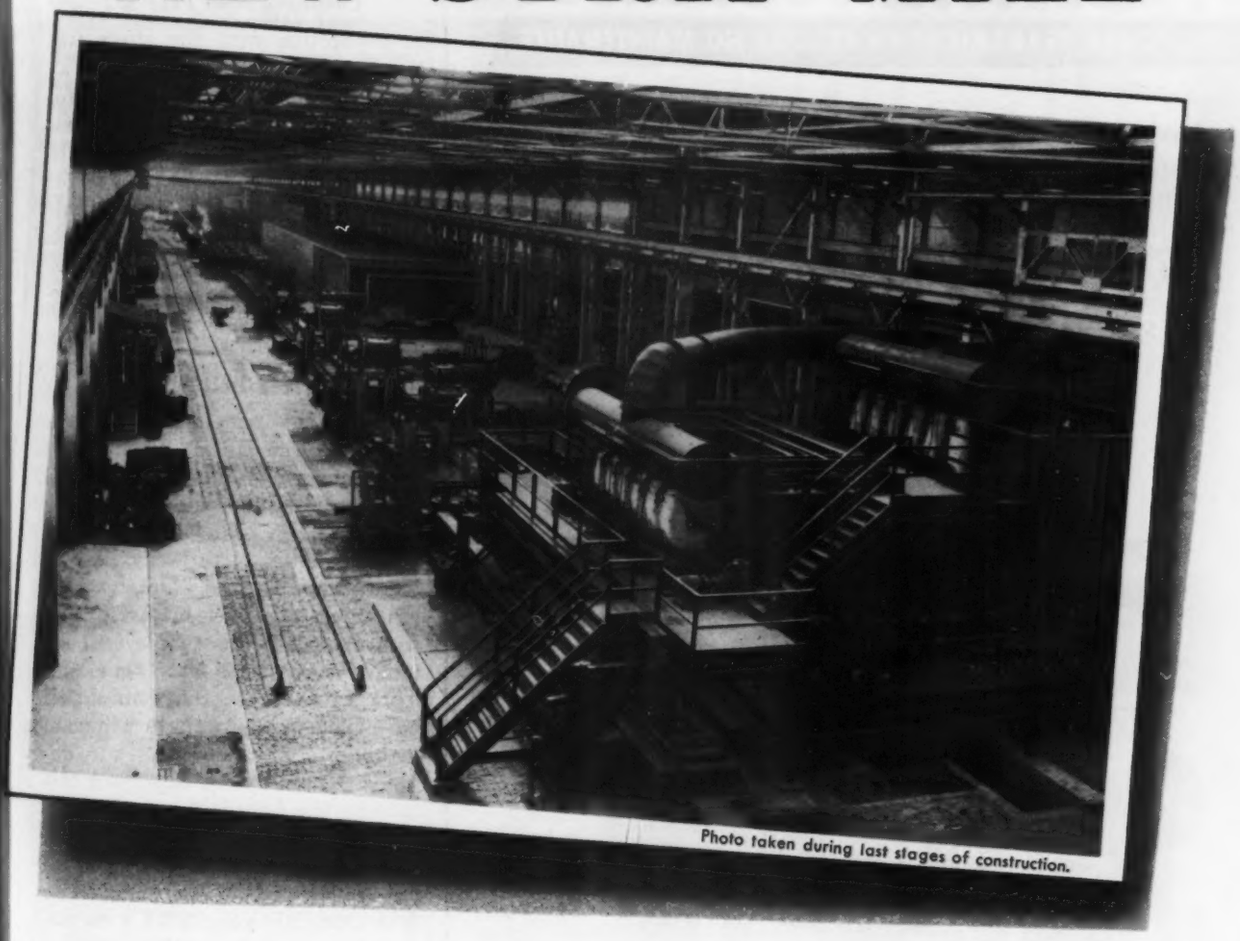


Photo taken during last stages of construction.

Here's good news for strip users . . . hot rolled strip is now coming out of our new 30 inch mill at Ivy Rock, Pennsylvania. This mill is the latest link in our chain of production and control extending all the way from the mine to you—another example of the progressive expansion of Alan Wood Steel Company to serve you better. Take advantage of this new source of supply. Put your problems in alloy or carbon steel up to our Metallurgical Department. Your inquiry will receive their prompt attention.

STEEL COMPANY

IVY ROCK, PA. SWEDELAND, PA. DOVER, N.J. OXFORD, N.J.

NEW YORK, PHILADELPHIA, PITTSBURGH, RICHMOND, SAN FRANCISCO, ST. PAUL, SEATTLE

Montreal and Toronto, Canada: *A. C. Leslie & Co.*

Plan to Buy More Tools

Continued from Page 371

in connection with the study was the increase in the average time allowed for new equipment to pay for itself. Some 68 pct of companies reporting indicated that they will be satisfied if the equipment pays for itself in 2 years or more. Over half of these actually are figuring on buying equipment even if it takes 3 years or more to earn its original cost.

Armour Offers Fellowships

Chicago — Armour Research Foundation of Illinois Institute of Technology has announced it will offer a limited number of industrial research fellowship in physics, chemistry, metallurgy, ceramics, mechanics and electrical engineering to begin in 1950. The men awarded fellowships will attend the institute half time and work in the research foundation half time in a graduate program leading to advance academic degrees. They will be employed full time by the foundation during the summer months.

In addition to tuition, fellows receive $150 a month during the first academic year, $275 a month and two weeks' vacation during the summer, and $175 a month during the second academic year. In 1949, the foundation awarded nine fellowships. Application forms may be obtained from the dean of he graduate school of Illinois Institute of Technology and applications received prior to Mar. 15 will be given first consideration.

Canadian Radioisotopes Available

Washington—Effective immediately, Canadian-produced radioisotopes will be made available to qualified American applicants for use in research. Some of the Canadian materials are of higher concentration than either the American or British production.

Full information may be obtained from the Isotopes Div., P. O. Box E, Oak Ridge, Tenn., the division which will also process all applications.

Big Boom Expected in Sales Of Gas Appliances Next Year

Industry sales are expected to be close to peaks of 1947-1948.

New York—Sales of gas appliances and equipment in 1950 will exceed 1949 totals and, in every division of the industry, will far exceed and in some classifications, more than double pre-war averages, according to a recent poll made among the 550 gas appliance and equipment manufacturer members of the Gas Appliance Manufacturers Assn. This will bring industry sales close to its 1947-1948 all-time peaks.

To reach these goals, manufacturers will intnesify sales training, improve dealers' sales aids and introduce more creative selling techniques among their dealers' outlets and salesmen. Approximately 50 pct of the manufacturers polled intend to increase their sales forces.

Expect Sales Increase

Analyses of manufacturer' estimates of 1950 sales indicate an expected 20 pct to 30 pct increase in gas range sales over 1949. Greater increases are expected in the sales of incinerators, refrigerators and clothes dryers.

Sales of gas-fired central heating equipment, manufacturers expect, will be 30 pct over 1949. Floor furnaces and direct heating equipment are expected to be about 20 pct greater. Automatic water heater sales are also expected to make substantial gains.

Sales Forces to Be Increased

Plans to increase sales forces vary widely among manufacturers. This is particularly true in the cases of the substantial number of new manufacturers who have recently entered the gas appliance and equipment field. In general, 54 pct of the reporting manufacturers plan to increase their sales force by as much as 25 pct. New manufacturers, particularly those making gas heating equipment, indicate increases up to 100 pct.

As in most industries, 1949 gas appliance sales did not reach 1948 peaks with the exception of the

heating appliance and equipment sections of the industry. However, in the last quarter, new monthly sales records were made by practically every division of the gas appliance industry.

Extension of natural gas pipelines, increases in gas manufacturing facilities and the increasing acceptance of gas for home heating, aided the gas heating manufacturers to reach all-time sales peaks which are expected to be exceeded in 1950 as additional transmission and manufacturing facilities are complete.

Conversion Burner Sales

During 1949, gas furnace sales were 35 pct above 1948; gas conversion burner sales were 500 pct greater than during 1948; while gas heating boiler sales increased 30 pct.

Orders for gas-fired central heating equipment continue to be received at a high rate and manufacturers report backlogs of orders more than double January 1, 1949. Unfilled orders for conversion burners are nearly 20 times greater than a year ago.

Manufacturers' shipments of gas ranges reach 2,000,000 units in 1949 and, while approximately 30 pct below 1948, were 40 pct above the 1936-1941 pre-war average. Sales showed steady increases each month from the January low and, in the fourth quarter, exceeded 1948 levels. October shipments reach an all-time industry high of 260,000 units.

Promotion Helped Sales

Automatic gas water heater unit sales totaled 1,350,000 compared with 1,500,000 in 1948, and were three times greater than the prewar average.

Shipments of gas-fired warm air furnaces totaled 260,000 units; gas boilers, 37,000 units; and gas conversion burners, 290,000 units. Floor furnace shipments amounted to 220,000 units.

Gas incinerators, gas clothes dryers and gas-fired year-round air conditioners, comparatively new gas appliances, showed substantial gains over 1948.

Intensive sales promotion cam-

paign in which all segments of the industry cooperate were important factors in lifting gas appliance sales from the January and February low points. These sales programs will form the pattern for the industry-wide intensified sales activities planned for 1950.

With the objective of selling 1,000,000 gas ranges during the second half of 1949 and thereby replacing as many as possible of the two out of three gas ranges in use which are more than 10 years old, gas range manufacturers of GAMA, in conjunction with the American Gas Association, gas utilities and dealers, launched a nation-wide "Old Stove Round Up" for the last six months of the year.

LP Gas Use Expands

Gas refrigerators continue to outsell other brands of refrigerators in many parts of the country. New models, to be introduced in January, will be backed by the largest national advertising and promotional program in the history of the industry. These expanded programs are expected to enable the gas refrigerator to strengthen its position in the intensely competitive household refrigeration field.

The LP (bottled) gas industry continues to provide a rapidly growing and attractive market for gas appliance and equipment manufacturers. With approximately 5,500,000 residential customers, representing a growth of 600 pct in the past ten years, LP gas users in 1949 purchased 24 pct of all gas ranges produced; 12 pct of all automatic gas water heaters manufactured, and similar high percentages of other gas appliances. The LP gas industry provides cooking service for more rural and "beyond the main" homes than any other automatic fuel.

New Markets Seen

The 1950 proposed $750,000 LP gas industry promotion and advertising campaign is expected to rapidly increase the number of homes using LP gas and to increase the importanc eof this rela-

tively new gas appliance and equipment market.

With no part of the country beyond the economic reach of low cost natural gas from Texas and other fields, the extension of natural gas pipelines and the expansion of gas manufacturing facilities already under construction, will open vast new markets for gas appliances and equipment manufacturers. The approximate 20,000 miles of natural gas pipeline planned for the next three years, will bring natural gas to the Atlantic Seaboard, the Pacific Northwest, and provide adequate supplies of natural gas to both established natural gas areas and additional communities.

To capitalize on these vast undeveloped natural gas and LP gas markets, and to meet the intense competition contemplated in the future, manufacturers are planning coordinated promotions so that all factors of the industry may benefit and so that each manufacturer's individual promotions will be strengthened.

Motor Car Interest Continues

Detroit—Public interest in new motor cars continues at an amazing pace.

According to N. K. VanDerzee, vice-president in charge of sales of Hudson Motor Car Co., more than 1,300,000 people saw the new Hudson Pacemaker during the first 2 days the car was on display. According to Mr. VanDerzee, more than 9000 orders were taken the day the car was announced and the day following.

Hudson has approximately 2500 outlets throughout the United States.

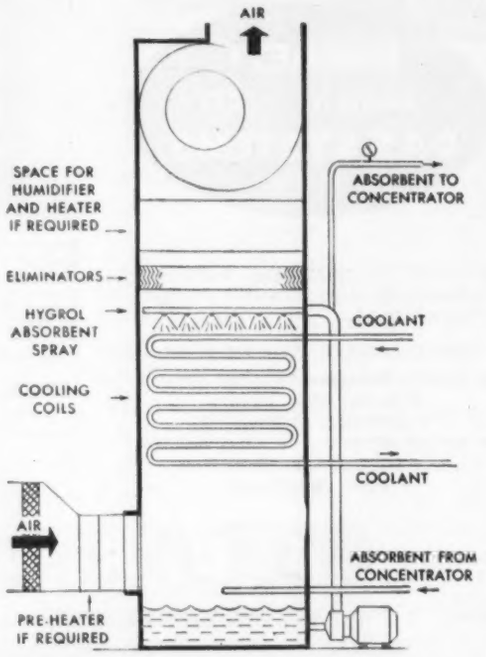
Preco Consolidates Operations

Los Angeles—Preco, Inc., manufacturers of heaters, air circulating fans and precooling equipment for refrigerator cars, farm and industrial implements and small hydraulic presses recently moved its operations and offices to new quarters at 6300 E. Slauson Ave. in the central manufacturing district.

New Method Gives Precise Control in Air Conditioning

Niagara "Controlled Humidity Method" Uses Hygrol, Hygienic Liquid Absorbent

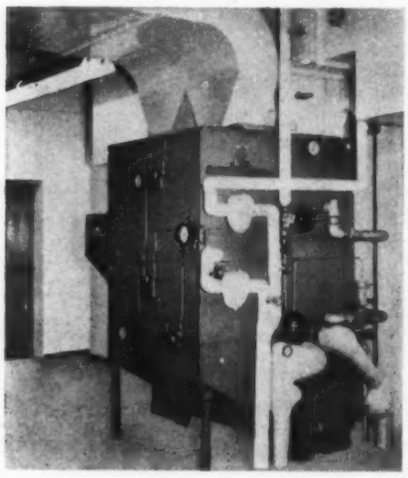
● The Niagara "Controlled Humidity Method" is a new system of air conditioning giving complete control of temperature and relative humidity, holding constant conditions or varying them at the will of the user. Especially, it provides dry air at normal atmospheric temperatures with little or no refrigeration required. A condition of 15 grains of moisture per pound of air at 85 deg. F. dry bulb temperature has been produced without refrigeration.



NIAGARA CONTROLLED HUMIDITY METHOD — FLOW DIAGRAM

The apparatus is enclosed in a casing thru which the air is drawn by fans. The air is filtered and then enters a chamber where it is dehumidified in passing thru a spray of "Hygrol" Liquid (a hygienic hygroscopic chemical that absorbs the air-borne moisture and contains no salts or solids to precipitate). In the same chamber are located cooling coils which remove the latent heat of evaporation and also sensible heat as required.

The absorbent liquid spray falls into a tank at the base, where it is piped to a concentrator, removing moisture taken from the air. The re-concentrated liquid returns to the system. This process is continuous, and the apparatus operates at full capacity at all times.



The same equipment may be used to provide winter air conditioning when required, by installing a tempering coil at the outdoor intake, an humidifier, and a reheat coil above the eliminators.

This equipment is manufactured in a range of sizes providing from 1000 to 20,000 CFM of conditioned air from a single unit, and mutiple unit installations are practical. It is expected that, by reducing the need for refrigeration, the cost of air conditioning will be reduced by this method. Applications generally are in a temperature range from 35 deg. F. upward. Below the freezing temperature of water, the Niagara "No-Frost" method is applicable.

The equipment is protected by U. S. and foreign patents. Installations have been made in food and chemical process industries, in packaging hygroscopic products, for preventing condensation of moisture on metals and other products in storage, in air conditioning for laboratory control and for human comfort.

For further information, write Niagara Blower Company, Dept. 1A, 405 Lexington Ave., New York 17, N. Y.

● *News of Industry* ●

Unemployment Rises in the Northwest; Officials Worried

Seattle — Unemployment continues to rise in the Pacific Northwest to the consternation of civic and business leaders.

For the week ending Nov. 26 Washington state had on file 47,530 claims for unemployment compensation and servicemen's readjustment allowances which is an increase of more than 27 pct over the week ending Oct. 29 and 68 pct increase over the week ending Nov. 27, 1948.

Total non-agricultural employment in Washington for October of this year is reported as having been approximately 5 pct below the October, 1948, figure with employment in the aircraft industry showing a marked increase of 15 pct.

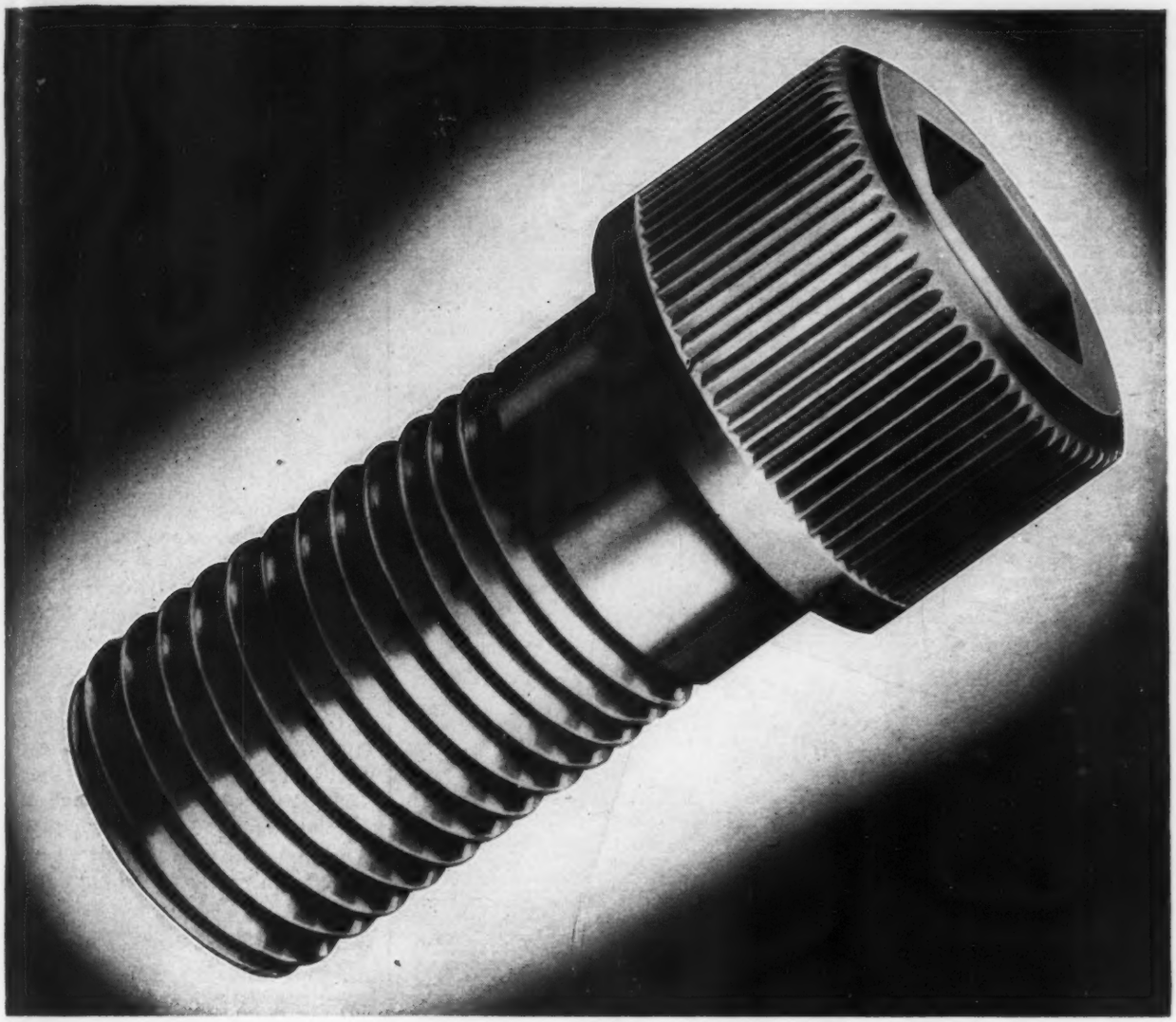
In Oregon unemployment is reported as having increased 10,000 in November which is approximately 53 pct higher than a year ago. Approximately 55,000 are reported as having been unemployed on Dec. 1.

While the rising curve of unemployment is of some concern especially in view of the increasing immigration, there is reason to believe that as a number of large construction projects soon to be undertaken will involve an appreciable segment of the presently unemployed group.

Building construction is expected to exceed $300 million during this year and the outlook for 1950 is encouraging with construction at the Hanford Works at Richland, Wash. expecting to total approximately $105 million. The nuclear reactor plant at Arco, Idaho will involve about $6 million in contracts to be awarded before the middle of next year.

Reclamation work alone in this area is expected to involve expenditures averaging about a million dollars a day up until the middle of 1950 and increases are expected after that date and construction of eight new dams in this area in 1950 will involve hundreds of millions of dollars.

Undoubtedly the defense proj-



The UNBRAKO Socket Head Cap Screw

...is specified by designers and production men everywhere because of its *time-saving* knurled head and its uniformly high quality.

Other "UNBRAKO" Products include: Socket Set Screws with Knurled Cup Points, Socket Set Screws with Knurled Threads, Square Head Set Screws with Knurled Cup Points—all patented Self-Locking screws that *won't shake loose!* Knurled Socket Head Stripper Bolts, Precision-Ground Dowel Pins, Fully-Formed Pressure Plugs.

SOCKET UNBRAKO SCREWS

SPS STANDARD PRESSED STEEL CO.

BOX 523, JENKINTOWN, PENNSYLVANIA

"UNBRAKO Counts With The Men Who Count"

ects authorized for Alaska and involving additional hundreds of millions of dollars will have a marked effect on easing unemployment as many purchases will come from the Pacific Northwest.

MP Funds to Pay Half Of Dutch Steel Modernization

Washington — Marshall Plan funds will pay for half the $47 million expansion program planned by the Royal Dutch Blast Furnace & Steel Co. of Amsterdam.

The company expects to increase its crude steel capacity from 340,000 to 570,000 tons a year by enlarging its openhearths and modernizing other operations. It will shut down its secondhand sheet mill and install integrated rolling facilities, ECA officials say.

On completion of the work, annual finished production is estimated at 60,000 tons hot sheet, 150,000 tons cold-rolled sheet and tinplate, and 200,000 tons of plate. The firm will also be able to produce 5-ton plates for shipbuilding.

Terminal Island Sinking Studied

Los Angeles — New efforts to save the Navy shipyard on Terminal Island, which will remain on standby basis even after being closed by the Navy Dept., were launched recently with the government seeking to organize a cooperative conservation program.

Terminal Island, site of the giant Navy shipyard and receiving station, a Bethlehem shipyard, the Ford Motor Co.'s assembly plant, many shipyard docks and warehouses, is sinking several inches each year with costly measures already planned to keep back the sea.

Part of the sinking is blamed on the presence of oil wells in the harbor area surrounding the island. Navy officials have asked oil company representatives to operate in unison in arranging curtailment through facilities of the Wilmington oil field operating committee and the conservation committee of the California Oil Producers Assn.

HIGHER PRODUCTION? *Yes!*

LOWER COSTS? *Yes!*

— and ACCURACY BESIDES

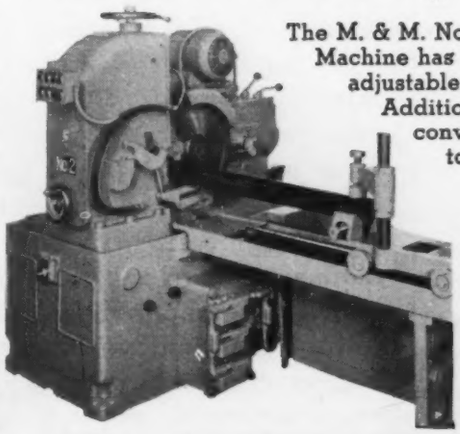
with the MOTCH & MERRYWEATHER NO. 2-A CIRCULAR SAWING MACHINE

Triple-Chip Method cut off 490 pieces in 50 seconds per cut at a cost of $.0101 per piece.

Alternate method cut off 100 pieces in 235 seconds per cut at a cost of $.0325 per piece.

As with all Motch & Merryweather Circular Sawing Machines, the No. 2-A (automatic) brings you all the advantages of the Triple-Chip Method. Stock up to 6" is sawed accurately to length without burrs, giving a mill-type finish, which eliminates second operations. Work is held rigidly on both sides of the blade. With the M. & M. Triple-Chip Saw Blade, correctly sharpened by the No. 1 Automatic Grinder, maximum cut-off speed and accuracy are attained. *Ask us to furnish you with cutting time figures.*

★ ★ ★



The M. & M. No. 2-A Circular Sawing Machine has automatic, micrometer adjustable-stop bar feed to 36". Additional stroke lengths and conveyor can be furnished to accommodate long length bars.

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A complete range of circular sawing machines is available for stock up to 16½" round as well as special machines to meet your requirements.

Write on your letterhead for Bulletin No. 2-G

THE MOTCH & MERRYWEATHER MACHINERY CO.
PENTON BUILDING • CLEVELAND 13, OHIO

AT YOUR COMMAND • AN UNPARALLELED EXPERIENCE IN CIRCULAR SAWING

• ***News of Industry*** •

Business Encouraged By O'Mahoney Stand on Taxes

Washington — Republicans and Southern Democrats in Congress are considerably encouraged by the stand taken by Senator O'Mahoney, D., Wyo., recently in opposition to higher federal taxes.

Mr. O'Mahoney, although usually regarded as a staunch supporter of any legislation proposed by the Truman Administration, declared that it is "a practical impossibility" to raise taxes now.

Rather than give consideration to new and higher taxes in 1950, the chairman of the Joint Economic Committee came out in favor of revisions in the federal tax structure which would give new incentives to businessmen and other taxpayers.

"I think the need for additional revenue can be met from conscious and intelligent effort to promote our own resources and to create business," Mr. O'Mahoney stated.

He recommended that 1950 budget-trimming activity by Congress be limited to such categories as stop-Communism funds, national defense, and aid to veterans.

He said that any attempt to cut off expenditures for such things as highways and abatement of stream pollution would "cast a wet blanket" over the economy.

"We must be doubly sure not to cut any government operation which helps business," the Democratic leader declared.

Cadillac Forms a 25 Year Club

Detroit — Cadillac Motor Car Div. of General Motors Corp. has established a 25 Year Club.

At the initial meeting of the new group held in Detroit recently 615 Cadillac employees were presented with gold watches in recognition of more than 25 years of service. At the same time 54 other Cadillac employees at the company's factory branches also received watches.

More than 3700 other Cadillac employees are being presented with gold emblems signifying service with Cadillac from 5 to 25 years.

NOW...

Only $975 for this Precision Lapping Machine

adaptable to a wide range of work

- ★ ***Produces a superfine finish on plane or cylindrical surfaces***
- ★ ***Ideal for tool room or small lot manufacture***
- ★ ***Provides a full 24" diameter of lapping area***
- ★ ***Low in cost . . . Economical in operation and maintenance***

Lapping cylindrical work on a Taft-Peirce Lapping Machine

Here's a lapping machine that will impart that last critical element of precision and finish to your parts. Yet it is inexpensive and has plenty of speed and capacity. In many cases, it will eliminate the need for far more costly and complex machine tools.

Easy to Use! The operator has only to hold the work against the revolving lapping plate. For cylindrical lapping, the work is placed in a special fixture and rolled against a plain surfaced plate; for flat lapping, a grooved plate is recommended. Plates are readily interchangeable as lapping needs vary. A plain plate is furnished as standard; machine with grooved plate, $22.50 extra.

Write today! Mail the coupon today for additional information on construction features.

THE TAFT-PEIRCE MANUFACTURING COMPANY

WOONSOCKET, RHODE ISLAND

Please send me additional information on your new lapping machine. I am primarily interested in lapping ( ) cylindrical surfaces, ( ) flat surfaces, ( ) both.

NAME.....

COMPANY.....

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Terminal Island Yard Closing May Be Modified

Long Beach—Encouragement in the effort to keep the Navy in the ship repair business in the Long Beach area was received from a visit to the harbor by Navy Secretary Francis P. Mathews.

Several months ago in its curtailment program, the Navy announced it would cut its 8500-man ship repair yard to a house-keeping maintenance group of 400. Since that time the measure has been fought vigorously by local groups.

A final decision by the Navy is expected around Jan. 1.

When asked if it were possible that the closing order might be modified, Secretary Mathews said: "If it weren't, I would not be here now." He said he flew to the area to survey the problem personally and report to Defense Secretary Louis Johnson.

Economy and the gradual sinking of Terminal Island, on which the shipyard is located, were given as reasons for the closing last summer.

In an experiment, Long Beach stopped pumping of oil from its wells surrounding the island and found that within the 3-month test period, the land dropped less rapidly. Whether it abandons the shipyard or not, the Navy plans to spend several million to shore up its installations and protect them. On the island besides the giant shipyard, it also has a major training base, obsolete airfield, and a large prison.

If the final decision of Secretary Mathews is to close the yard as planned originally, several thousand metalworkers will be on the job market.

Smog Damage Suits Grow

Pittsburgh—Damage suits against the American Steel & Wire Co., growing out of the October, 1948, smog disaster now total 22. The latest action was filed by Abe D. Celapino, Route 51 restaurateur, and his family, who claim $100,350 in damages.

15 points where metal-working plants get TUBING SATISFACTION for all needs

You have a wide choice of
B & W MECHANICAL AND PRESSURE TUBING

TYPES—Seamless (hot finished and cold drawn). Welded (from hot or cold rolled strip).

GRADES—Carbon, Alloy, and Stainless.

SIZES—Up to 8⅝" O.D. in full range of wall thicknesses.

QUALITY—Open-hearth and electric furnace steels, including aircraft and magnaflux qualities.

CONDITION—Unannealed, annealed, tempered, normalized, or otherwise heat-treated as required.

SURFACE FINISHES—As rolled, as drawn, as welded, bead removed, turned, scale-free, and polished.

SHAPES—Round, square, rectangular, and special shapes.

In addition to B&W Tube Co. offices listed here, jobbers and distributors stock B&W Tubular Products . . . grades, sizes and gauges for all pressure and mechanical needs. Write for name of distributor nearest you.

THE BABCOCK & WILCOX TUBE COMPANY
GENERAL OFFICES: BEAVER FALLS, PA.
PLANTS: BEAVER FALLS, PA.
AND ALLIANCE, OHIO

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15. TULSA 3, OKLA.
Philtower Building
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Tulsa 2-0298
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Progressive Metalworkers Interested in Joining USWA

Salt Lake City—Eleven of the 15 Progressive Metalworkers Council locals in Utah and Nevada have made formal applications for charters in the United Steelworkers of America. One has voted to join the steelworkers but is postponing entry pending clarification of certain questions; two have postponed a vote on the issue; and one (a local at the Bingham mine of Kennecott Copper Corp.) has voted against affiliation.

High Ratio Engine for Willys

Toledo — Willys - Overland has drawn the curtain partly aside on its passenger car development to indicate that a new high compression engine will be available for introduction next spring.

According to Delmar G. Roos, first vice-president of the company, the new Willys powerplant is approximately the same size as that in the current Willys line. However, it has an appreciable increase in horsepower and some features which are revolutionary for American automobile engines, Roos revealed.

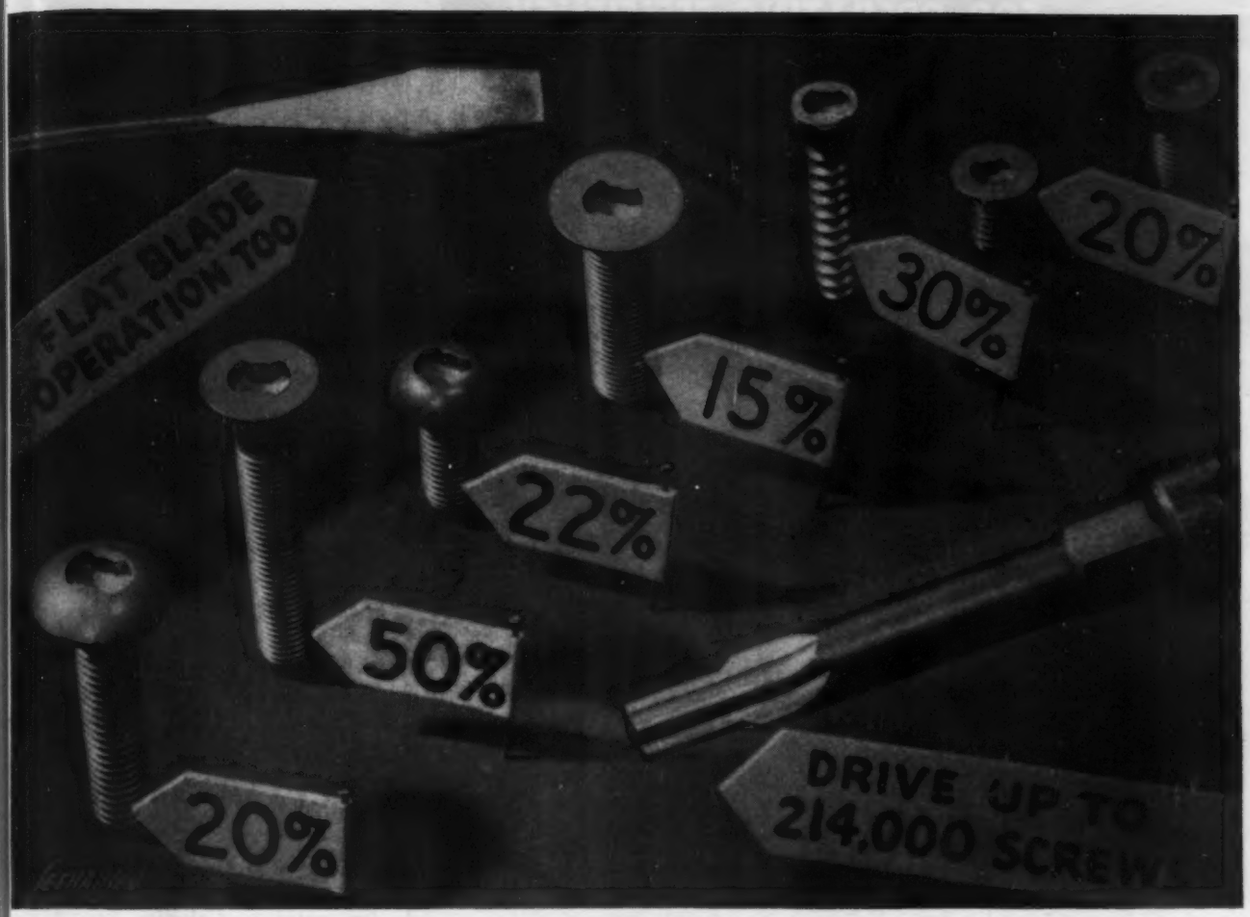
Roos said the new powerplant will stress fuel economy. He added that horsepower and torque per cu in. displacement compare favorably with the best published results in Europe and the United States.

The company has been experimenting with compression ratios as high as 8 to 1 in the new engine, Roos said.

Afghanistan Gets E-I Loan

Washington — Afghanistan has been granted a $21 million loan by the Export-Import Bank to finance construction of an earth dam and irrigation system.

Bank officials estimate that the Afghanistan government will buy about 5000 tons of steel products in the United States, under terms of the agreement. In addition, an undetermined quantity of grading equipment will be bought.



Here's How CLUTCH HEAD *Lowers the Cost of Driving Screws*

These Production Increases Tell the Story

Double-check these exclusive features of "America's Most Modern Screw" and determine what they mean to your assembly line in terms of *lower screw application cost.*

√ ***The smooth speedy tempo of the line*** is unhindered by operator hesitation. High visibility of the roomy Clutch recess inspires confidence with an easy-to-hit target.

√ ***The time toll of burred or chewed-up heads*** is eliminated by CLUTCH HEAD'S non-canting driving action. The Center Pivot column on the Type "A" Bit makes straight driving automatic . . . even with "green" operators.

√ ***Skid damage to men and materials*** is checked out by CLUTCH HEAD'S all-square non-tapered driving contact...for definitely *higher non-stop speed,* and with maximum safety.

√ ***With no end pressure to combat "ride-out"*** (as set up by tapered driving) the CLUTCH HEAD drive-home is effortless, disposing of a fatigue factor. No end-of-the-shift lag means more screws driven.

√ ***Rugged Bit drives up to 214,000 screws*** without stop for tool change. Add to this production gain the multiple saving in tool cost . . . because the Type "A" Bit may be repeatedly reconditioned in 60 seconds.

√ ***The Lock-On ousts fumbling fingers*** by uniting screw and bit as a unit for one-handed reaching at any angle into inside spots. This feature frequently dispenses with use of a second operator.

√ ***Basic design for screwdriver operation*** is a boon to service men and users . . . simplifying emergency field adjustments to save valuable operating time.

√ ***Ask us to send you*** package assortment of screws along with sample Type "A" Bit and illustrated Brochure . . . so that you may personally check these features.

CLUTCH HEAD SCREWS

"AMERICA'S MOST MODERN SCREW"

UNITED SCREW AND BOLT CORPORATION

CLEVELAND 2 CHICAGO 8 NEW YORK 7

FREE

PUBLICATIONS

Continued from Page 36

prevent leakage of corrosive liquids in the Worthington line of centrifugal chemical pumps are described in a 12-p. bulletin. *Worthington Pump & Machinery Corp. For more information, check No.* 11 *on the postcard on p.* 37.

Universal Balance

The Aronson line of universal balancing machines, designed to rotate work pieces on any axis and maintain them in any selected position, are photo-illustrated in 4-p. folder. *Aronson Machine Co. For more information, check No.* 12 *on the postcard on p.* 37.

Pull-Up Broach

The uses and features of the Colonial line of pull broaching machines are listed and described in 4-p. catalog. *Colonial Broach Co. For more information, check No.* 13 *on the postcard on p.* 37.

Hydromatic Mill

The Cincinnati line of heavy-duty fixed-bed hydromatic milling machines is described, and the uses of these units illustrated in a 36-p. catalog. *Cincinnati Milling Machine Co. For more information, check No.* 14 *on the postcard on p.* 37.

Portable Lighting Lines

The latest designs and price lists of String-a-Lite lines for portable light and power applications in aviation, construction, railroads and general industry are presented in 12-p. illustrated bulletin. *Mines Equipment Co. For more information, check No.* 15 *on the postcard on p.* 37.

High Strength Steel

"The Transportation of Steel," a 32-p. brochure, describes Otiscoloy, low-alloy, high-strength steel widely used in the transportation industry. Technical data, proved fabricating techniques, and finished

products made from this alloy are shown. *Jones & Laughlin Steel Corp. For more information, check No.* 31 *on the postcard on p.* 37.

Hole Puncher

The Wales type H horizontal hole punching units for punching holes in curved and straight flanges and rims are described in 8-p. catalog with photos, detail drawings, and charts. *Wales-Strippit Corp. For more information, check No.* 32 *on the postcard on p.* 37.

Cast Steels

Carbon and alloy steels for castings are described and listed in new 16-p. brochure that presents standard and commercial applications furnished by this company. *Dodge Steel Co. For more information, check No.* 33 *on the postcard on p.* 37.

Radiant Heating Ovens

Radiant gas heating rates of from 1 to 5 min per inch of steel thickness, and the consequent metallurgical advantages of faster metal flow and reduced scale formation, are discussed in "Heat Processing Machines for Forging and Bending." *Selas Corp. of America. For more information, check No.* 34 *on the postcard on p.* 37.

Briquetted Alloys

How cast iron quality can be improved through the addition of briquetted ferro-allays of silicon, manganese, and chromium is discussed in 24-p. bulletin. *Electro Metallurgical Div., Union Carbide & Carbon Corp. For more information, check No.* 35 *on the postcard on p.* 37.

Squaring Shears

Bulletin No. 900 describes the line of Columbia steel squaring shears that feature quiet, long wearing worm gear drives and electrically actuated clutches, available for shearing stock from 3/16 to 1¼ in. thick. *Columbia Machinery & Engineering Corp. For more information, check No.* 36 *on the postcard on p.* 37.

Resume Your Reading on Page 37

Du Pont Co. Contributes Funds for Chemical Research

Grants to universities will total $100,000 for second year.

Wilmington, Del.—The Du Pont Co. has authorized, for the second year, $100,000 for grants-in-aid to universities to "stock-pile" knowledge through the advancement of fundamental science.

These grants-in-aid are for unrestricted use in the field of fundamental chemical research. This plan of assistance was inaugurated last year by Du Pont on a trial basis with the aim of increasing the amount of such research being done in this country.

The grants are for the 1950-51 academic year. They provide $10,000 for each of 10 universities, all of which received similar awards from the company for the present school year. The company also provided $20,000 to the University of Chicago for a 1950 membership in its Institute for the Study of Metals.

Less Fundamental Research

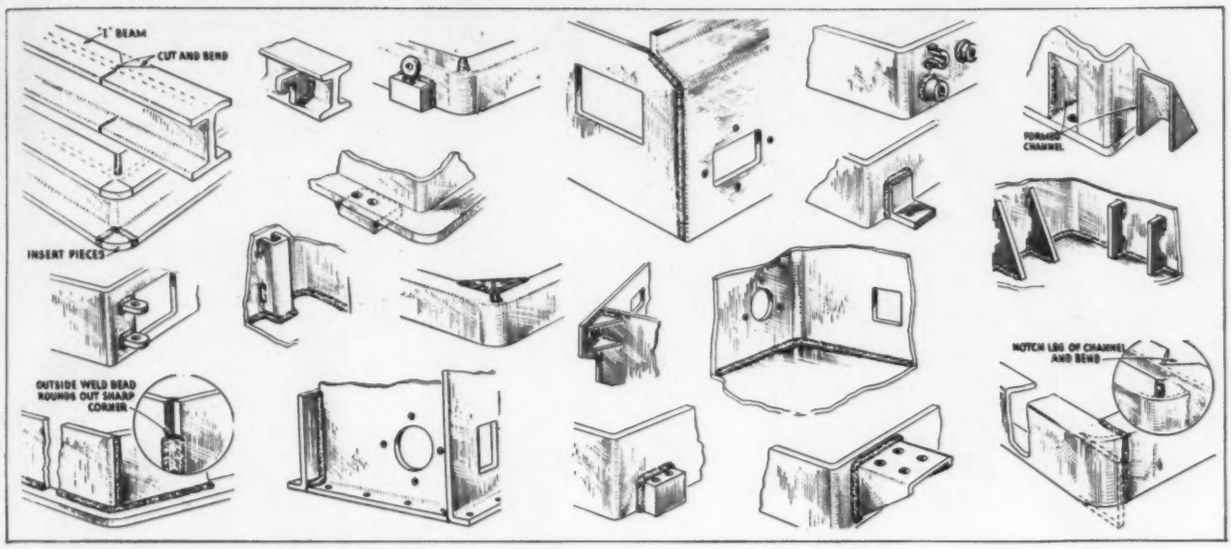
Recognizing that applied research in industry is dependent to a large extent upon fundamental knowledge developed by the universities, Du Pont noted that there has been a trend away from fundamental research. This was caused in part by decreasing funds available for this work from endowments.

The company originated the grants-in-aid to bolster funds available for fundamental research and thus encourage American institutions of higher learning to help reverse that trend and to make further progress in the stock-piling of basic knowledge, which is a paramount need for future industrial development and for national health and defense.

Select Research Projects

In this program, the universities themselves select the research projects for which the grants will be used, the only stipulation being that they be free from any commercial implications at the time the work is initiated.

Ideas on Designing Bases for Greater Rigidity at Less Cost



Examples of simple design details for fabricating more durable machinery bases at less cost with arc welding.

Machinery bases built from welded steel possess more than twice the rigidity per pound than cast iron. By fabricating with arc welding, manufacturers are able to incorporate many unique design features at less cost since most component parts are readily cut and formed from standard steel shapes and plate and then clamped in simple fixtures for fast, easy arc welding.

Suggested above are but a few of many design ideas that can be used to simplify the construction of machinery bases, and at the same time, achieve greater rigidity, clean, modern appearance at a remarkably low cost.

In a great many cases, plain structural shapes like steel bars, channels, "I" beams and simple plate are used almost entirely. Where metal forming equipment is available, component parts can be bent to shape, thereby minimizing both fit-up and welding. Many components can also be pre-drilled and tapped on small, high speed equipment, eliminating the need for heavy, slower operating machine tools.

Design improvements or changes to suit customers' needs are more easily accomplished with welded design. Costs and delays of pattern changes are eliminated, thus cutting down overall production time and speeding manufacturing schedules.

Rigid All-Welded Base *for planer. Side members are sheared plate reinforced with stiffeners. Courtesy Porter Machinery Company, Grand Rapids, Mich.*

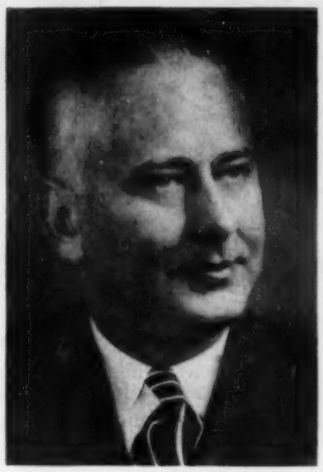
Clean, Modern Styled Appearance *is made possible with structural shapes and plate. Base has totally enclosed reservoir for coolant storage.*

● More detailed analysis for low-cost design of machinery bases is contained in the "Procedure Handbook of Arc Welding Design and Practice." Price is only $1.50 postpaid in the U.S.A.; $2.00 elsewhere.

Iron Age *Introduces*

Continued from Page 25

J. T. Duggall has been named plant manager of the Kaiser Aluminum Cable plant of KAISER ALUMINUM & CHEMICAL CORP., Oakland, Calif. Mr. Dugall was formerly with the General Cable Corp. as plant manager of their Rome, N. Y. office.



CLARION A. PURBAUGH, general superintendent, American Steel & Wire Co., as announced in last week's issue.

Clarence J. Krueger has been named production manager for the paint division of PITTSBURG PLATE GLASS CO., Pittsburgh. Mr. Krueger has been associated with the firm since 1927, and has served as assistant divisional director of the Ditzler Color Div. during the past three years.

Duncan K. Foulds and **Monty G. Martin** have been appointed to staff the new Shreveport, La., office of TEXAS GAS TRANSMISSION CORP., New York. Mr. Foulds worked previously for the Transcontinental Pipe Line Corp. Mr. Martin was previously employed by the Carter Oil Co.

Ralph Hanes has been appointed director of advertising and sales promotion of the DODGE MFG. CORP., Mishawaka, Ind., succeeding the late **W. W. French.** Since 1942 Mr. Hanes has been sales promotion manager of the mechanical goods division, United States Rubber Co., New York.

IRON AGE INTRODUCES

Continued

Percy H. Waller has been appointed manager, Railway Div. of the MANGANESE STEEL FORGE CO., Philadelphia. Mr. Waller was formerly associated with the Pullman Co., where over a period of 37 years he served in various branches of the business.

KEITH H. MOODY, division superintendent, open hearth, American Steel & Wire Co., as announced in last week's issue.

Charles W. Wiegel has been appointed general manager and **Robert E. Shoup** general superintendent of the Colonial Steel Div. of VANADIUM-ALLOYS STEEL CO., Latrobe, Pa.

J. A. Street has been named purchasing agent in charge of all purchasing for the Houston division of SHEFFIELD STEEL CORP., Kansas, and **G. R. Major** was appointed assistant purchasing agent in charge of raw materials and stores. **D. J. Weaver** was named in charge of purchases of miscellaneous materials and supplies.

Harold Duncan has been promoted to the position of assistant regional manager of EUTECTIC WELDING ALLOYS CORP., New York. Mr. Duncan was formerly district engineer in Texas.

Douglas G. Eaton has been appointed manager of the Cleveland office of the REED-PRENTICE CORP., Worcester, Mass. Mr. Eaton has had many years' experience in the injection molding field.

Rails and ties for Lionel electric toy trains are assembled at the rate of 1250 per hour in this Bliss No. 21 Inclinable Press with 48", 8-Station Bliss dial feed and a staking die.

Why Bliss Inclinable Presses Outsell All Other Makes

AND WHY IT'S THE PRESS FOR YOU

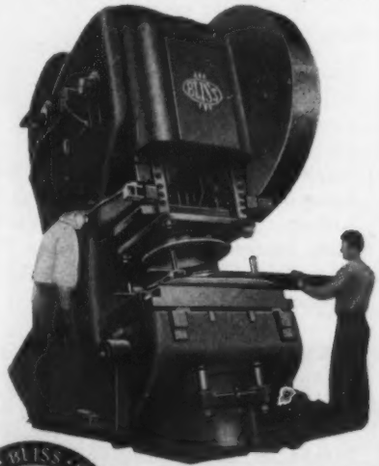
Look "inside" a Bliss inclinable press and you'll understand why it's preferred by press users everywhere...why there are more than 100,000 in use.

At the right are the reasons—plus the fact that they are priced right—most often reported to us by the trade for this overwhelming preference. They add up to ruggedness and almost indestructible precision.

If your pressed-metal production calls for inclinables, you're sure to find the answer among Bliss' wide range of standard sizes. You'll make the right choice, too, because "BLISS" on your press is more than a name...it's a guarantee!

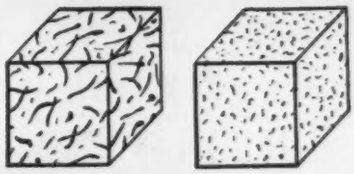
E. W. BLISS COMPANY, TOLEDO 7, OHIO

MECHANICAL AND HYDRAULIC PRESSES, ROLLING MILLS, CONTAINER MACHINERY

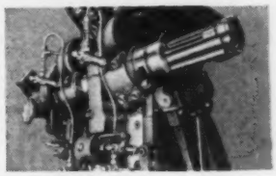


No. 30, 200-ton Enclosed Inclinable Press.

A NEW INCLINABLE PRESS CATALOG, 2-C, IS JUST OFF THE PRESS. Write for it today, as well as for Service Sheet A-105, which gives operating and maintenance instructions.



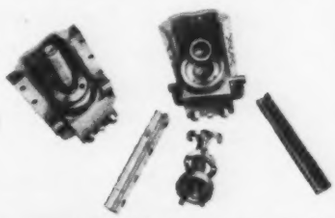
FRAME. Strong and durable press frames of high tensile Meehanite castings. Three-dimensional drawings show distribution of graphite in ordinary cast-iron (left) as compared with controlled graphite structure of Meehanite castings (right) used in Bliss presses.



CLUTCH. Bliss patented Rolling Key Clutch, universally called the finest positive clutch available on any press. Note location of clutch keys near shaft center. This means slower-moving points of engagement, faster operating speeds, less shock during intermittent operation and longer life to all moving parts.

CONNECTIONS. Solid, plug-clamp connection strap, which gives full 360° bearing against slide adjusting screw. This arrangement also permits using V-thread on screw, making replacement easy.

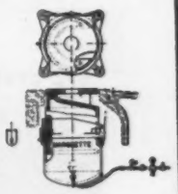
SLIDE ASSEMBLY.



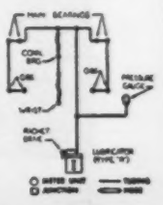
Slides are accurately gibbed to insure precise registry of die and punch. Ball seat is renewable, as are split bronze ball-cap bushings and laminated shim against which ball-cap is brought down by four bolts to give correct clearance for proper lubrication and fit.

BEARINGS, WAYS AND GIBS. Main shaft bearings and connection bearings are bronze bushed. Roller bearings are standard for drive shaft bearings on large geared presses. All wearing surfaces are especially finished to insure long life.

CUSHIONS. Every Bliss Inclinable Press is designed and machined to accommodate the Bliss Marquette die cushions which extend the press application to drawing operations.



LUBRICATION. Bliss Inclinables have floor-line lubrication systems with oil or grease fittings at main points of moving contact. All standard Bliss Inclinable frames are machined to take Bijur one-shot pressure system.



BLISS BUILT

Bliss Builds More Types and Sizes of Presses Than Any Other Company in the World

IRON AGE INTRODUCES

Continued

Newton H. DeBardeleben, formerly executive vice-president, has been elected president of the DEBARDELEBEN COAL CORP., Birmingham. He succeeds **Henry F. DeBardeleben, II,** who was made chairman of the board.

C. E. STEWART, assistant secretary, Carnegie-Illinois Steel Corp., as announced in last week's issue.

E. P. Jastram, Jr., has been appointed chief engineer of the Spencer Thermostat Div. of METALS AND CONTROLS CORP. Mr. Jastram was previously a field engineer in the St. Louis branch. **C. A. Peterson** is taking over Mr. Jastram's duties as field engineer in St. Louis.

Bernard J. Coos has been appointed advertisng manager of the LIQUID CARBONIC CORP., Chicago. Before joining Liquid, Mr. Coos was with Hotpoint, Inc., Chicago. in the sales promotion department.

C. J. Garrigan has been appointed manager of S. P. KINNEY ENGINEERS, INC., Carnegie, Pa. Mr. Garrigan became associated with the company in 1947 as sales engineer and became manager of sales in 1948. Prior to his association with S. P. Kinney Engineers he was district sales representative for Clinton Machine Tool Co. and Turchan Follower Machine Co.

John M. Scott has been appointed head of the die engineering and maintenance department of the STUDEBAKER CORP., South Bend, Ind., and **Arthur H. Eulitz** has been made assistant to Mr. Scott.

IRON AGE INTRODUCES

Continued

Creston E. Kite has been appointed general manager of UNISTRUT EASTERN SERVICE CO. He will be in charge of Unistrut's offices and warehouse facilities at Irvington, N. J. Mr. Kite was formerly general sales manager of Abarry Steel Co.

Adolph D. Mandl has been appointed manager of the DIE-MOLD CORP., Milwaukee. Mr. Mandl was formerly with Allied Chemical & Dye Corp. and General Aniline Film Corp., New York.

W. H. SaLee has been named general sales manager of JANETTE MFG. CO., Chicago. Mr. SaLee will take over this position succeeding **Harvey Klunder**, who recently resigned from the company.

George R. Browder has been appointed director of advertising and merchandising for the HUDSON MOTOR CAR CO., Detroit. Mr. Browder succeeds **M. M. Roberts** who is retiring after fifteen years of service with Hudson. Mr. Browder was formerly with General Motors where he obtained varied executive experience.

L. E. Waters has been appointed sales representative in the south for STAR TUBULAR PRODUCTS CO., Chicago. Mr. Waters who also represents Detroit Brass and Malleable Co., Detroit, was previously affiliated with Wheeling Steel Corp.

Raymond K. Serfass has been named assistant general sales manager of the YORK CORP., New York. Mr. Serfass was formerly industrial sales manager of the North Atlantic Dist. of the corporation.

Phil R. Becker has been made sales manager of the welding fitting division of MIDWEST PIPING & SUPPLY CO., Inc., St. Louis. Mr. Becker joined the Midwest firm ten years ago and since 1945 has devoted his entire time to sales in the welding fittings division.

Harry S. Thompson has been appointed general works manager of the AMERICAN FURNACE & FOUNDRY CO. and AMERICAN BOILER & FOUNDRY CO., Milan, Mich. Mr.

Turn to Page 408

IRON AGE INTRODUCES

Continued

Thompson is a member of the foundry management engineering firm of George H. Elliott & Co. During the previous seven years, he was associated with Norris & Elliott, foundry management consultants of Columbus, Ohio.

Richard Parkhurst has been elected president of the MYSTIC TERMINAL CO., Boston and Maine Railroad waterfront operating subsidiary. Mr. Parkhurst for 16 years was a member of the Boston Port Authority.

William J. Phalen has retired as Chicago district manager of the midwestern territory for the BUFFALO BOLT CO., Buffalo. Mr. Phalen has had 45 years of service with the company. He is being replaced by **Clarence E. Zettel** who is being transferred from the New York office.

J. P. Fagan has been elected vice-president and treasurer of INTER-LAKE IRON CORP., **P. J. Kettler** was made comptroller and **H. R. Zoll** auditor. **J. A. Mitchell** has been appointed manager, coal chemical sales.

Joseph M. Temple has been appointed manager of Baton Rouge, La. branch of the FOXBORO CO., Foxboro, Mass. He succeeds **John B. Deaderick**, now manager of the Tulsa office. Until recently Mr. Temple was sales engineer with the J. B. Beaird Co., Shreveport, La.

John Kishman has been appointed district manager of the SIMONDS ABRASIVE CO., Philadelphia. Mr. Kishman will cover Ohio with the exception of Toledo and Western Pennsylvania, centering in Cleveland and Pittsburgh.

Elmer A. Terwell has been named sales engineer in the Chicago territory for ROLOCK INC., Fairfield, Conn. Mr. Terwell was formerly with the Driver-Harris Co. and the Salkover Metal Processing Co., Ill.

J. Robert Bunch has been appointed sales representative to assist J. D. Alexander for AMERICAN WHEELABRATOR AND EQUIPMENT CORP., Mishawaka, Ind. Mr. Bunch has for the past four years supervised the erection and servicing of Wheelabrator blast cleaning equipment and Dustube collectors.

IRON AGE INTRODUCES

Continued

Ernest E. Seise has been named assistant to the president of the ERIE RAILROAD CO., Cleveland, succeeding **Hugh A. McAllister** who is retiring. Mr. Seise started with Erie in 1916 and has served in various capacities since that time.

John H. Smith has recently become affiliated with MANUEL T. FINE AND CO., Los Angeles, as sales manager. Mr. Smith was formerly with the Pacific Metals Co. **J. H. Woody** will be sales representative for the state of Arizona and the San Diego area.

Phil L. Fett is retiring as general purchasing agent of DOEHLER-JARVIS CORP., New York because of ill health. **Robert A. Bower,** who has been serving as assistant general purchasing agent will assume responsibility for the details of the purchasing department.

G. R. Brophy, research metallurgist, will head the New England Technical Section of the Development and Research Div. of INTERNATIONAL NICKEL CO., INC., New York, succeeding the late **D. A. Nemser.** In 1939 Mr. Brophy joined the research laboratory of the company as research metallurgist, and later was placed in charge of the laboratory's steel section.

Bruce S. Williams has been appointed assistant to the president of the RUSSELL MFG. CO., Middletown, Conn. He was formerly manager of the southeast territory, belting division of the company.

Henry W. Blackman has retired as sales manager of the Stanley Electric Tool Div., STANLEY WORKS, New Britain, Conn. His record of employment with Stanley covers 46 years and started in 1903 when he became an order clerk with the Stanley Rule & Level Co. **Fred O. Fuller** has been appointed sales manager to succeed Mr. Blackman. Mr. Fuller became affiliated with Stanley as a member of the purchasing department in 1918.

A. B. Agnew, vice-president in charge of operations of the LACLEDE-CHRISTY CO., St. Louis has been elected a director of the company.

Larry F. Hardy has been appointed president of the Television and Radio Div. of PHILCO CORP., Philadelphia. Mr. Hardy joined Philco in 1932.

Resume your reading on Page 26

Sees Prosperous Year; Plans To Expand Office Furniture Firm

Sales of Royal Metal Mfg. Co. have increased 95 pct since 1941.

Chicago—Based on the general demand for metal office furniture for commercial and professional use, Irving Grombacher, president, Royal Metal Mfg. Co., Chicago, predicts a prosperous business year for 1950. On this basis Royal Metal is expanding its manufacturing facilities and output, and is preparing to enter the export field in the Spring. Mr. Grombacher expects no lower than a 15 pct increase in sales. Early estimates indicate that in 1949 Royal Metal sales were up about 95 pct from 1941, their best prewar year. The most noticeable increases were in office equipment lines and in the contract division.

For 1950 they see a slight diversion in the trend. Accordingly they are planning to devote more materials to school and hospital equipment. They figure that the expansion of school and hospital building will continue for the next ten years, with a great many changes being made in design, since the trend is towards more functional, modern equipment in these institutions, and since very little change has occurred in the past half-century.

Future Looks Bright

Nowhere can they find a pessimistic outlook. There is greater demand than ever for their products, even though they are slightly more expensive than most metal furniture. Mr. Grombacher feels that retrenching firms would not be buying new office installations; or if forced to, they would not be demanding the best, unless they knew that both the short and the long-range views were optimistic.

In the line with the continuing demand the Royal Metal Mfg. Co. is expanding its manufacturing facilities both in this country and Canada. At their main plant in Michigan City, Ind., they are planning to build a new warehouse, thus releasing more space for actual manufacture of square and round tube chrome furniture.

Heyl & Patterson Looks to the Future

"All The Way from Design to Erection" is far more than a slogan with Heyl & Patterson. It is a plan of operation wherein each essential function from design to successful operation is performed by the one organization.

The many years of successful application of this plan of operation has developed a spirit of team-work on the part of the Heyl & Patterson design, electrical, fabrication, machine shop and erection departments.

This teamwork permits the successful execution of our contracts for Heavy Bulk Materials Handling Equipment on time and on a basis that brings years of satisfaction to our customers.

It is this teamwork that makes the Heyl & Patterson "TURN-KEY WAY" the most effective way when you want an Ore Bridge or Coal Bridge that includes modern engineering methods with the age-old quality standards that the name "Heyl & Patterson" signifies.

Ore Bridges
Railroad Car Dumpers
High Lift-Turnover-Rotary
Coal Preparation Plants
Coal & Coke Handling Equipment
Boat Loaders and Unloaders
Rotary Mine Car Dumpers
Coal Crushers
Coal Storage Bridges
Car Hauls & Boat Movers
Bradford Breakers
Refuse Disposal Cars
Thorsten Coal Samplers
Kinney Car Unloaders
Pig Iron Casting Machines

Heyl & Patterson, Inc.
"SINCE 1887"
55 WATER STREET · PITTSBURGH 22, PA.

Exports, Imports of Iron And Steel Products Rise in Volume

Washington—Both exports and imports of iron and steel products gained in volume during September, according to the Commerce Dept. and American Iron & Steel Institute.

Exports rose by about 15,000 tons to a total of 498,585 tons during the month, while the volume of imports almost doubled. Tonnage in the latter category jumped from 7448 tons to 14,092 tons.

Exports for the first 9 months of the year stand at 4,293,137 net tons, while imports during the same period total 370,695 tons.

Iron and steel scrap, which is not included in the above totals, accounted for 441,491 tons of export shipping during the first 9 months of the year, while 1,033,246 tons were imported during the same period.

Product-by-product tabulations for exports and imports issued jointly by the two offices follow:

EXPORTS:		First
Semifinished and Finished Products:	Sept. 1949	9 Months 1949
Ingots, blooms, billets, slabs, sheet bars	30,791	240,621
Wire rods	6,016	49,254
Skelp	15,032	92,954
Concrete reinforcement bars	8,097	96,950
Steel bars, cold-finished	2,281	34,019
Other steel bars (excluding alloy)	23,016	243,280
Alloy steel bars	1,496	18,504
Welding rods, electric	1,161	13,581
Plates including boiler, not fab.	57,413	380,353
Plates, fab., punched or shaped	3,867	27,669
Iron sheets, black	3,130	18,563
Steel sheets, black	60,762	448,386
Galvanized sheets	8,405	68,828
Strip steel, cold-rolled	4,652	48,881
Strip steel, hot-rolled	7,451	69,571
Tinplate	47,681	459,379
Terneplate	911	8,601
Structural shapes, plain	25,358	268,932
Structural shapes, fab.	13,803	116,486
Sheet piling	2,652	16,470
Rails, 60 lb per yd and over	22,847	165,575
Rails, less than 60 lb per yd	1,061	6,943
Rails, relaying	152	19,248
Splice bars and tie plates	1,797	17,758
Frogs and switches	174	5,150
Car and locomotive wheels, tires and axles	10,266	49,148
Seamless black pipe and tubes	1,392	21,734
Seamless casing and line pipe	30,965	228,852
Seamless boiler tubes	3,492	35,827
Welded black pipe	11,420	85,260
Welded galvanized pipe	13,377	71,709
Welded casing and line pipe	18,912	184,940
Other pipe and fittings	5,279	55,806

EXPORTS:

Semifinished and Finished Products:	Sept. 1949	First 9 Months 1949
Plain wire	4,904	65,621
Galvanized wire	3,774	50,381
Barbed wire	11,109	65,324
Woven wire fencing	1,634	14,432
Wire rope and strand	846	10,720
Wire nails	2,835	24,034
Other wire and manufactures	1,190	17,763
Other nails, incl. staples and horseshoe nails	1,136	8,776
Bolts, nuts, rivets and washers, except railroad	1,816	21,316
Forgings	1,095	20,755
TOTAL	477,660	3,986,093
Other Finished Products:		
Tanks, complete and knocked down	6,424	87,746
Metal lath	268	4,811
Tin and galvanized hollow ware	194	2,019
Tin cans, finished or unfinished	1,677	27,139
Mall. iron screwed pipe fittings	341	4,411
Cast iron pressure pipe and fittings	4,687	34,420
Cast iron soil pipe and fittings	627	8,300
Iron castings and ingot molds	4,374	40,484
Steel castings	260	2,297
Sprocket and other power trans. chains	321	4,120
Other chains	567	4,917
TOTAL	19,772	221,291
Pig iron	472	70,317
Ferroalloys	681	15,436
TOTAL	1,153	85,753
GRAND TOTAL	498,585	4,293,137
Iron and steel scrap	25,638	441,491

IMPORTS:

Semifinished and Finished Products:	Sept. 1949	First 9 Months 1949
Steel ingots, blooms, etc.	9,969	41,077
Wire rods	314	3,283
Concrete reinforcement bars	....	4,417
Hollow bar and drill steel	....	35
Other steel bars	51	17,875
Boiler and other plate	9	24,067
Sheets, skelp, sawplates, n.e.s.	3	8,608
Tinplate, tagger's tin and terneplate	22	60
Other hoops and bands	1	5,310
Structural shapes and sheet piling	815	112,765
Rails and fastenings	....	996
Pipes and tubes	34	5,284
Flat wire and strip	103	1,350
Wire rope and strand	156	561
Nails, tacks and staples	25	1,271
TOTAL	11,659	228,645
Pig iron	....	77,735
Sponge iron	386	2,191
Ferromanganese (mang. content)	1,130	50,683
Ferrosilicon (silicon content)	65	717
Ferrochrome (chromium content)	271	2,524
Other alloys used in steel manufacturing	565	7,925
TOTAL	2,417	141,775
GRAND TOTAL	14,092	370,695
Iron and steel scrap	5,618	1,033,246

Consumption of Canadian Nickel Is Down About 15 Pct

French output is still small but reported increasing.

Copper Cliff, Ont.—"Total world consumption of Canadian nickel in all forms for the year 1949 is expected to be about 15 pct lower than in 1948, when a new high peacetime record was established," Robert C. Stanley, chairman of the board of International Nickel Co. of Canada, Ltd., stated recently in a review of the nickel industry.

'During the early part of the year," Mr. Stanley said, "nickel sales remained high and were comparable to the volumes achieved in the previous year. A sharp drop in the period May through August, however, was followed by improvement during the remainder of the year to date, despite the fact that consumption was adversely affected in the autumn months by the steel and coal strikes in the United States.

"The fall in demand for various metals, including nickel, required a reduction of nickel production by International Nickel bringing the rate of the last half of the year to approximately 15 pct below the previous level.

French Output Rises

"French production of nickel showed an increase over the preceding year although it was still relatively small as compared with Canadian. Most of this output comes from mines in New Caledonia. The Cuban mines remained closed and no production was reported from that country. Russia continued to produce nickel, but no information was made available on its output of the metal.

"The United States again was the largest consumer of Canadian nickel, with approximately 65 pct of the total being used in that country. Consumption in the United Kingdom was about 20 pct. These two countries, with Canada, accounted for approximately 88 pct of consumption. The United States price of nickel continued unchanged throughout the year.

Dear Editor

SHEFFIELD STEEL

Can you tell me for what iron and steel products other than cutlery, Sheffield, England is famous? Also, if you have had any recent items commenting on Sheffield, England competition?

CHAUNCEY P. CARTER
Washington, D. C.

While Sheffield, Yorkshire, is internationally known for cutlery, it is extremely important as a British center of production of quality and alloy steels as opposed to tonnage steel. Steel production is principally in electric furnace, crucible and quality openhearth steel. There is also a substantial production of files, saws, wrenches and tools. Although our correspondents have visited Sheffield from time to time recently, there has been no such competition as would warrant a special item.—Ed.

KRUPP-RENN PROCESS

I am looking for literature on the Krupp-Renn process for handling low-grade iron ores and was told that your journal within the past year had published an article on it. As most issues of this year are not available to me at our library (they were just withdrawn for binding), I would greatly appreciate your letting me know in which issue this article has appeared. Besides the publication in your journal of May 9, 1946, I found descriptions of the process only in the patent applications and in two Alien Property Custodian reprints by Edward Bros., Inc., Ann Arbor, Mich., the latter two being in German.

DR. RUDOLPH G. WUERKER
Asst. Professor
University of Illinois
Urbana, Ill.

Considerable data appeared in the trade press in recent years in connection with the Krupp-Renn process. In most cases the discussion relating to the method is incorporated into subjects of broader scale and it is therefore difficult to find specific references. Two articles which appeared this year in THE IRON AGE that might be of some assistance to you are, "Fused Ore for the Openhearth," April 7, 1949, and "Reducing Coke Consumption in Iron & Steel Production," July 14, 1949.—Ed.

PIPE PRICES

As a regular reader of your valued weekly, I take the liberty to ask you to let me have the following information. Under the heading Markets and Prices, you also published the prices for pipe and tubing by specifying different base discounts f.o.b. mills

DEAR EDITOR

Continued

to be applied to the base price of about $200.00 per net ton. I should very much appreciate your explanation as to how these discounts are to be understood. Are these discounts percentages on $200.00 to be deducted from $200.00. Apart for the qualities of pipe specified by you, I should be thankful if you would give me the same indication, that is, base prices, discounts, if any and the commercial prices ruling per November 1949, for seamless oilwell casing, drillpipe and tubing manufactured in accordance with the last API specifications.

E. GELLER
Petrolexport
Bucharest, Roumania

Discounts on pipe and tubing quoted in the price section of THE IRON AGE are in terms of percentages to be subtracted from the base price, which is about $200.00 per net ton. For instance, black seamless steel pipe, 3½ to 6 in. carries a discount of 43½ pct, so that the price of this pipe, in carload lots, would be approximately $113. per net ton. You will note that our price quotations cover only pipe commonly sold in the merchant trade. We do not quote prices on oil country pipe and casing because limitations of space do not allow the extensive listings which would be required, and also because prices on many of these items are subject to negotiation between the individual supplier and purchaser. To secure prices on such products, we suggest that you write to one or more individual suppliers.—Ed.

BACK ISSUES

We very much wish to thank you for placing a notice in THE IRON AGE regarding the early volumes of this magazine we wished to give away. A reply has been received from an excellent library, the one connected with the British Cast Iron Research Assn., Birmingham, England. So you see your column was read a long ways off with good results. The volumes have been shipped today, and we truly can think of no better place for them.

ELEANOR V. WRIGHT
Engineering Librarian
Chrysler Corp.
Detroit

We have been advised by another source that any interested reader may acquire another set of bound volumes running from 1918 to 1930. Anyone interested should contact Readers Service, THE IRON AGE, 100 E. 42nd St., New York 17.—Ed.

WELDING STAINLESS

We would appreciate receiving for the use of our technical section, tear sheets of the two part article entitled "Welding Stainless Steel," by L. F. Spencer which appeared in the October 20 and 27, 1949 issues.

T. C. EVANS
Manager, Technical Section
E. I. du Pont de Nemours & Co., Inc.
Orange, Texas

A copy has been sent.—Ed.

Studies Nuclear Engineering

Pittsburgh—Executives of the Westinghouse Electric Corp. are going to school to learn something more about the atom, with Naval officers associated with the Atomic Energy Commission's reactor development program as the professors.

The 45 "students" will attend 17 weekly lectures on nuclear engineering as an aid to better understanding of the subject. The school is sponsored by the AEC and the Westinghouse Atomic Power Div., which now is engaged in producing a nuclear power plant to drive a Navy ship. The classes were started Aug. 10.

Barge Launchings Set Record

Washington—Inland waterways operators put more barges and tow-boats into service in 1949 than in any other year in peacetime history.

A total of 127 barges and 25 tugs were turned out by inland waterways shipyards during the first 10 months of the year, according to American Waterways Operators.

The 127 barges have a gross tonnage of 72,761, AWO said. Oil barges led the list with 47 units. Other types produced were hopper, acid, tank, cargo, spud, and scow barges.

Nonferous Metals Authorized

Washington — Procurement by Belgium-Luxembourg of more than $2 million worth of metalworking machinery other than machine tools was authorized recently by the ECA.

Total authorizations amounted to more than $202 million. About $35 million or 18 pct will be spent for nonferrous metals, primarily copper and copper products ($24 million).

Other sizable procurements included $1.8 million in motor vehicles and parts for Greece and $8.8 million in miscellaneous steel mill products for various nations.

FATIGUE CRACKS

Continued from Page 22

We'll be sitting there in front of the television set watching the holocaust, listening to the announcer tell us that we have a better view of what's going on than the Almighty Himself.

Pow-wow

Just to point up the way things change, one of the big social events of the holiday season was an intertribal dance of American Indians. We couldn't attend, but we understand that the fox trot, waltz, and rhumba replaced the hot steps developed through the generations. The closest thing to war paint was that worn by the ladies. The dance was held, of course, in a New York City ballroom.

Men of Industry

Elsewhere in this issue, you f.f.j. readers have, by your votes, raised a generous jigger of distinction to outstanding Men of Industry.

Though the election board has not allowed us to peek at the ballots, we have no doubt that the selections are outstanding — captains of production, research giants, perhaps even a financial wizard.

While we have the bugle corps deployed in full uniform, we wonder if it couldn't sound a couple of blasts to honor the men of industry who fill-in and finish the rough drawings sketched by the leaders.

Nearly every nation has produced at least one thinker, a few men with top executive ability, and at least a brace of scientists that ponder in the upper brackets. The smooth functioning of the American industrial machine, we think, is in no small part due to the small cogs.

In reading Scientist Vannevar Bush's book, *Modern Arms and Democracy*, we were impressed by his appraisal of wartime success. Full credit was given to the partnership of the military men with the scientists, but there was a generous acknowledgment to the importance of the G. I.'s boyhood background of tinkering with cars and radios. This made training in more complicated mechanisms easy.

We have a strong hunch that peacetime is not much different. The brilliance of the first team is in no small part due to the tremendous depth of the scrubs. So we'll sound a blast for the scrubs, too, and on this last serious note settle down to more trivial expressions for the balance of the year.

Resume Your Reading on Page 23

Electric Progress in Many Fields Highlighted by GE Report

Progress in continuous annealing furnaces and motors cited.

Schnectady — Progress of the electrical industry in 1949 was particularly significant in many fields, the General Electric Co. reports in a survey of its technical achievements of the past year. In that of power generation, for instance, there were the installation and operation of the first stationary gas turbine generator, and of three mercury unit power plants. Installations of steam turbine generators were notable both for sizes and for the remarkably short times required for installation.

Further advances in the design of electric equipment better able to withstand damage from lightning and with the objective of lower cost to the industry will be attained in a new high-voltage engineering laboratory completed at Pittsfield, Mass.

Motor Demand Seen Higher

Power-transformer production at Pittsfield was the largest in its history, and included were many exceptionally large units. Today it appears the only limiting factor as to maximum rating is that imposed by transportation facilities, and these limits continue to be extended by advances in design.

Outdoor switching units for 230,000-v service were produced as package units complete with circuit-interrupting elements, integrated disconnecting switches, and supporting steel structure. They interrupt 10,000,000 kva in 1/20 sec.

Continuous Annealing Furnaces

There was an increased demand, in the motor field, for adjustable-speed drives and, in turn, for packaged equipment having the integrated, factory-assembled generator, motor and control in one case, ready for connection. Use of an alnico permanent magnet in a fractional-horsepower motor greatly improved operating characteristics and considerably reduced motor size.

Conspicuous among industrial

heating applications was a continuous annealing and dry-pickling furnace. Galvanized steel produced in it is of such high quality it can be bent, rolled, and to some extent drawn without cracking or flaking the zinc.

For the mining industry there was developed a special push-button drive and control equipment for automatically raising ore from deep mines and dumping it.

An optical contour-following system causes a machine tool to follow a fine-line drawing with a machining accuracy of one mil.

The amplistat, a self-saturated magnetic amplifier without tubes or moving parts, was advantageously applied in numerous industries. In steel mills, for example, it was used in conjunction with the amplidyne to maintain steel strip at a predetermined level in the pickling tanks of a new 66-in. pickling line, with far superior results. Again with an amplidyne, the amplistat was used to hold tension on the winding reel of the world's fastest cold-strip mill.

America's first gas-turbine-driven locomotive went on the tracks, first in road tests on eastern railroads and then in actual road service on the Union Pacific Railroad.

Heat Pumps Installed

Pilot installations of heat pumps, for cooling and heating, were made in selected areas throughout the country. The air is the primary heat source, with water or ground coils supplementing some installations.

Lower-cost products were the trend in appliance developments. A portable dishwasher, for example, does the same job as the stationary model but offers a considerable saving in installation costs.

Remote control of indoor and outdoor lighting, heating, ventilating, and similar equipments is provided by a self-contained utility unit incorporating a relay and low-voltage control wiring.

A new alnico permanent-magnet material, with its crystal structure aligned in the direction of magnetization, permits use of smaller mag-

nets in radio loud speakers and communications equipment.

Among new equipment were a beta-ray gage, a non-contacting thickness gage particularly for paper, rubber, plastics and textile measurements; a recording turbidimeter for water, sewage and chemical plants; and a high-precision tachometer measuring speeds of rotation up to 15,000 rpm within 1 rpm accuracy.

Research laboratory investigations of metals and alloys were both extensive and intensive; it has become possible to design materials to have required properties at high temperatures.

At the Hanford Works in the State of Washington, operated by GE for the Atomic Energy Commission, a new pile went into operation for the production of plutonium, and a new plutonium metal fabrication plant began operations there in July.

Work on the Knolls Atomic Power laboratory near Schenectady progressed. Operated for the Atomic Energy Commission, it will be in full use early in 1950, in studies of nuclear energy for the production of useful power. Construction is about to start on an experimental power plant using a nuclear reactor as the energy source on a 4000-acre tract in Saratoga County, north of Schenectady.

Forms New Brokerage Business

Pittsburgh — Formation of the Roberts Steel Corp., which will engage in the scrap iron and steel brokerage business, was announced here recently. The company's headquarters will be at 2922 Grant Bldg.

Officers of the new firm are: D. L. Wilkoff, of David L. Wilkoff Co., Pittsburgh, president; Howard F. Black, H. F. Black Co., Youngstown, vice-president; Richard A. Cohn, Butler Iron & Steel Co., Butler, Pa., vice-president; Myron J. Urdang, A. Shaw Co., Cleveland, vice-president; Bertram S. Green, Green Steel Products Co., Pittsburgh, treasurer; and Robert K. Wilkoff, David L. Wilkoff Co., Pittsburgh, secretary.

NEW

PRODUCTION IDEAS

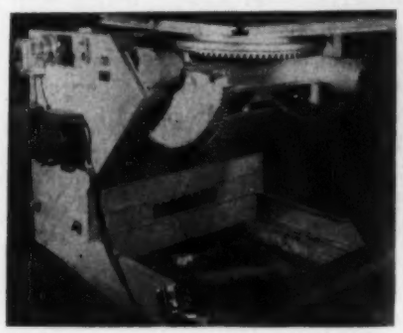
Continued from Page 40

bers that fit the splines of the cores are interchangeable. Cores have a range from 1¼ to 2¾ in. and have n.c. ¾-10 precision threads. A

ratio-limiting collar controls distortion of thin work and regulates expansion of the pressure members, which in turn hold the work firmly and accurately in place. *Layne-Held Corp. For more information, check No. 27 on the postcard on p. 37.*

Positioners

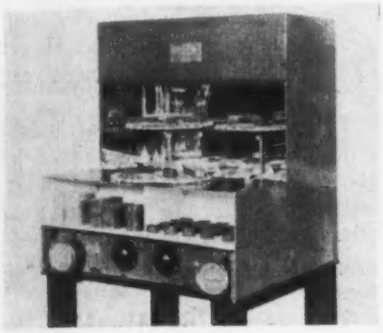
Heavy duty gear driven positioners for welding and assembling operations have capacities of 2500, 3000, 4000, 5000 and 6000 lb. Variable speed drive of the work table offers speeds from zero to 0.75 rpm on the six models. The work table, through a gear motor, tilts 135° in 40 sec. Controls are located on



one side of the machine and a 12-ft remote pushbutton is standard equipment. The elevating sub-base adjusts up to 24 in. *Aronson Machine Co. For more information, check No. 28 on the postcard on p. 37.*

Molding Preheater

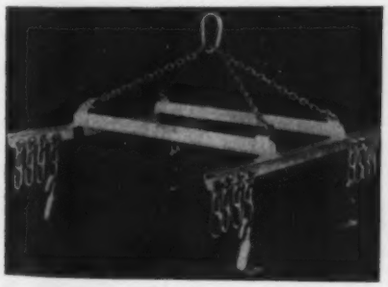
Designed for the compression molder so that he may change the temperature and the time period instantly between cycle operations and at will, the new Miskella infrared Roto-Veyor reduces the moisture content of preforms before they are placed in the die, thus increasing dimensional stability and improved electrical properties. The



manufacturer claims that cost of molding can be reduced since the Roto-Veyor speeds up the cure of all compression and transfer powders. *Miskella Infra-Red Co. For more information, check No.* 29 *on the postcard on p.* 37.

Adjustable Cradle

Commercial aluminum or stainless steel sheets, 36, 42, 48 and 54-in. wide x 4 to 8 ft long can be speedily handled with a new adjustable cradle. As the cradle operates, its heat-treated alloy hooks pick up the boxes or skids of sheets, giving a vertical lift to the load at



all points. This prevents bowing of the sheet bundle, eliminates material kinking and safeguards against gouging. The cradle sling has a safe working load capacity of 2000 lb. *Woodhouse Chain Works. For more information, check No.* 30 *on the postcard on p.* 37.

Resume Your Reading on Page 41

Economist Sees Steel Gain, Auto Output Dip Next Year

Foresees industrial output holding within 5 pct of the 1949 FRB index.

Cleveland—Steel production in 1950 is likely to be larger than in 1949, but probably by not more than 5 pct.

The automobile industry will probably turn out at least 80 pct as many cars and trucks next year as in 1949.

The physical volume of industrial production, as measured by the Federal Reserve Board index, will be about 175 for the year 1949, and the 1950 monthly average will not differ by more than 5 pct.

The recent devaluation on foreign currency will not have a major effect on total U. S. foreign trade in 1950.

These and other predictions on the business outlook for 1950 were made here recently by David C. Elliott, economist of the Cleveland Trust Co., one of the nation's major banks.

Replacement Boomlet Due

Speaking before the Cleveland Chamber of Commerce, he said, "It requires no great foresight" to say the nation will have a little replacement boom for a while. This boomlet will be chiefly a matter of building up of customers' stocks of steel and coal which were depleted during the recent strikes.

According to Mr. Elliott, for industrial users as a whole, it is likely that replacement buying will be an element of importance for some time.

The curve of business activity will receive a sort of delayed stimulus during the early months of 1950. This will represent for the most part a transfer of activity which would have occurred in late 1949 except for the strikes, he declared.

Construction Seen Holding

Evaluating the prospects of the three basic industries in detail, Mr. Elliott asserted that total volume of construction in 1950 will not be very different from

1949, but it is probable that the downward trend of plant and equipment expenditures will continue in 1950. Public works, which registered a 23 pct gain in the first 11 months of 1949, over the same months in 1948, will increase substantially in 1950.

In view of the prodigious 1949 output of automobiles, Mr. Elliott said, it seems too much to expect another new record in 1950. The prevailing pattern of the industry in the past has been a 2 or 3-year rise in production followed by a drop for a year or more before the beginning of the next advance. Since 1949 was the sixth straight year (not taking into account the prewar years) of increased automotive production, output next year will be lower than 1949, but not low.

Good Steel Market Seen

In steel, Mr. Elliott said that a readjustment to the ordinary needs of steel users will follow replenishment of stocks in consumers' hands. At that time the level of activity in the automobile and building industries will be an important factor in demand. Allowing for a tapering-off in steelmaking operations when shortages have been eliminated, 1950 production of steel should compare favorably with the 1949 total because a substantial part of the tonnage lost in October and November this year will be added to 1950 production.

Adequate Coal Supplies Assures Good Steel Operations

Salt Lake City—The 3-day work week in Utah coal mines will have no adverse effect on the operations of Geneva Steel Co. for some time. A large part of the company's coal requirements can be filled by a 3-day week and any deficiency can be made up from the large stockpile on hand. Operating officials estimate that the Geneva and Ironton plants could operate at the present level (75 pct of capacity) for 90 days on present coal re-

serves. The company's coal mines were operating 4 days per week before John L. Lewis cut the week back to 3 days.

In an effort to get closed nonferrous metal mines reopened, the Utah industrial commission has submitted a proposal to the operators and unions. The plan calls for establishment of per man day production quotas which would permit a profitable or a break-even operation and an agreement on the part of the workers to maintain a given quota for a given rate of pay. Production over the quotas would be paid for extra. Declining productivity per man day was one of the factors which forced the closing of the mines.

The immediate reaction of operators was that the proposal was not feasible because of the large percentages of workmen not engaged directly in ore production.

Ryan Leads in Export Field

San Diego—Ryan Aircraft Co., which in recent years has regained a high position in the personal aircraft field with the Navion, was one of the leading plants in the export field during October, sending $201,902 in personal aircraft to 11 foreign countries during the month.

The company has announced a new 260 hp Lycoming-powered super Navion which cruises at 170 mph and climbs 1250 ft per min with full load. Deliveries will begin early next year. The companion Navion is a 205 hp plane with a Continental power unit.

Discusses City Bus Operation

Detroit — Milo M. Dean, chief engineer of Greyhound Corp., Chicago, presented a paper on the subject, "Problems in Operating Inter-City Bus Lines" before the Detroit Section, Society of Automotive Engineers, recently. In his discussion Mr. Dean described some of the problems involved in operating a fleet of 5800 inter-city buses. His talk covered both engineering and maintenance problems in addition to public relations and advertising.

U. S. Steel Reports On Year of Technical Progress

Advances cover equipment, raw materials and research.

New York—While the use of oxygen to speed steelmaking in the open hearth furnace continued to be a live research study, two new Bessemer steel developments took the 1949 news spotlight on the technological stage of United States Steel Corp. operating subsidiaries.

(1) At midyear measurable success with a new type of side-blown Bessemer converter, called the "Turbo-Hearth," was announced by Carnegie-Illinois Steel Corp., largest subsidiary, in collaboration with Jones & Laughlin Steel Corp., an independent steel producer.

(2) As the year ended, National Tube Co., pipe-making subsidiary, was operating a large new Bessemer steel plant at its Lorain, Ohio, works, and its fully killed acid Bessemer process had been discussed at length in the technical press.

New Units Operating

Steady progress was made throughout the year by subsidiary companies putting into operation new units of the huge modernization and improvement program, launched immediately following the war. A new continuous seamless tube mill, the world's first, was rolling at National Tube. Geneva Steel Co. completed its conversion to the manufacture of hot-rolled coils to supply the new cold-reduction and tin plate mill of Columbia Steel Co., at Pittsburg, Calif. American Steel & Wire Co. completed concentration of its stainless steel wire-drawing facilities at Waukegan, Ill.

Recover Flue Dust

Carnegie-Illinois was operating new rolling facilities at its Gary, Ind., and Irvin, Pa., Works and new silicon sheet facilities at Vandergrift, Pa. A heavy-gage continuous galvanizing line was also in operation at Irvin Works.

Late in the year, construction

was begun on six new plants to process powdery iron ore to useable size and to recover iron from blast furnace flue dust. The plants will be built at strategic centers by Oliver Iron Mining Co., Carnegie-Illinois and National Tube.

First of its type on the rivers, a Diesel-electric tugboat was put in operation on the marine ways of the Carnegie-Illinois Clairton Works. Used as a harbor tug to shift barges which supply coal to the by-product coking plant—the world's largest—of this United States Steel subsidiary, the vessel is of all-welded steel construction, with ⅜-in. thick hull plates fabricated from USS Cor-Ten.

Anti-Dog-Ear Steel

Search for steels that will not dog-ear when formed into ketchup bottle tops led scientists of the research laboratory, U. S. Steel Corp. of Delaware, to a development of keen interest also to manufacturers of washing machine tubs, cooking pots and other symmetrical shapes. A new instrument designed at the laboratory and called the "recording torque magnetometer" can tell in a matter of 6 min whether or not a given type of steel can be drawn into deep shapes. The sample used is a flat disk, about the size of a 25-cent piece.

Extensometer Developed

National Tube Co. announced that it had added two new banks of special creep-testing equipment and a full line of dynamic strain gage equipment to its research laboratory in Pittsburgh. At the same time it described the installation at its National Works, in McKeesport, Pa., of a big new corrosion-fatigue testing machine on which sections of seamless steel drill pipe are flooded with corrosive brine, simulating oil well conditions, and rotated for weeks under bending forces up to 200,000 in.-lb. The machine measures the resistance of pipe to stresses that may cause fatigue failure during deep drilling.

Combined research of scientists

of Carnegie-Illinois and U. S. Steel of Del. developed a strip temper mill extensometer to measure and control the stiffness of steel strip while it is being given its final rolling at speeds as high as 2000 fpm. This instrument measures final stiffness by comparing the speed of the strip as it enters the temper rolls with its greater speed as it emerges from them, the increased speed of delivery indicating added length, which indicates how much thinner the strip is rolled, the latter governing finished stiffness.

Use Geiger Counter

The Geiger counter was adapted by scientists of the U. S. Steel research laboratory to the development of a quick and accurate method of analyzing steel samples. After careful calibration for many specific problems, some of which are yet to be solved, Geiger counter analysis is expected to be even faster than the direct-reading spectroscope, itself a recent development in metallurgical analysis.

Accurately reproducible results from spectrochemical analysis are obtained by the use of a new electric power source designed in the research department of American Steel & Wire Co. Thoroughly tested and its results proved, it provides energy for either the spark or arc method of analysis. The unit is small and compact, serving as the base for the spectrograph. The light source is designed for universal application in emission spectrochemical quantitative analysis.

Rapid Sorting of Stainless

Also in the field of spectroscopy, technicians at Wood Works of Carnegie-Illinois perfected a new system for rapid sorting of various grades of stainless steels and detecting residual elements in them. The metal analyzer consists of a fixed-deviation glass prism spectrometer mounted on a portable cabinet. The visible range coincides with the visible range of the spectrum and may be increased by the use of photographic attach-

ments. The arc stand will accommodate a range of sample sizes and is contained in a housing with a safety switch on the door jamb to facilitate rapid changing of samples.

Hydrophil Balance Used

At the Carnegie-Illinois research laboratory a hydrophil balance was adapted to the measurement of minute quantities of cottonseed oil applied to tin plate to facilitate handling and to protect the surface from corrosion preliminary to can manufacture. The minuteness of this instrument's measurements may be visualized from the fact that the oil film customarily applied to tin plate is so thin that such a film, if applied uniformly on all four walls, the ceiling and floor of a large hall 50 ft wide, 20 ft high and 400 ft long, would weigh only 1 oz. The sample used in the test is only 4 in. sq.

Thickness Meter Developed

Another new instrument in the tin plate field is a coating thickness meter developed at the Carnegie-Illinois research laboratory. It may be set for coatings of various weights, 0.00003 in. being the usual thickness. If desired, the meter literally will sound an alarm the minute tin coating varies from uniform.

High Speed Saws Installed

The first of several new high-speed friction saws to be installed in various warehouses of United States Steel Supply Co. was placed in operation in this company's Chicago warehouse. Capable of making a clean square cut across heavy steel sections, such as structural shapes, the 60-in. blade operates by remote electric control. Its teeth whirr more than 320 mph at normal speed. When the blade makes contact with steel, friction generates heat more rapidly than the material can absorb it, the intense heat actually melting the steel locally and the teeth of the saw carrying it away.

Claim for another "biggest yet"

item was entered by Homestead Works of Carnegie-Illinois with the forging of a 142-ton anvil for a 12,000-lb forging hammer. This anvil, one of two recently forged at Homestead, was believed to be the largest produced by this method.

Ore Fields Studied

The three major ore fields whose product U. S. Steel subsidiary companies employ in the manufacture of steel were subject to renewed study during the year. The mining operations of Geneva Steel Co., including its unique "slice and harrow" blending system, were treated in detail. A survey of the electric power that will be needed for beneficiation of low-grade ores in the Mesabi range was made by officials of Oliver Iron Mining Co., U. S. Steel's iron ore subsidiary, and data were presented on the powerful equipment used to remove Mesabi ores from the giant open pits of the northwest. Iron ore conditioning and sintering processes as performed by Tennessee Coal, Iron & Railroad Co., U. S. Steel's southern subsidiary, were reviewed, and information was presented to the technical societies on dust control in T.C.I. mines.

Uses Bessemer Converters

Three active and one spare 25-ton Bessemer converters, of all-welded and stress-relieved design, are the core of the new steelmaking plant of National Tube Co. at Lorain, Ohio. The new continuous tube mill is expected to manufacture up to 18,000 tons per month of seamless steel pipe and tubing in a diameter range from 2 to 4½ in. A new blooming, bar and billet mill was also added to the Lorain facilities during the year, to round out earlier improvements.

These consisted of a giant warehouse to house a continuous supply of the company's products, a concentration of butt-weld pipe facilities, and new coal-handling and coke-making plants, including a coal research laboratory.

Allis-Chalmers Reports On Equipment It Installed

Year-end report highlights chief installations of past year.

Milwaukee—Engineering, product and research developments aimed at providing the metal and machine tool industries with more efficient equipment are described by Allis-Chalmers general machinery division in its year-end review.

For expanding operations, a large smelting and refining firm is being supplied with four 13x27-ft copper poling furnaces and a 13x30-ft copper holding furnace, complete with Allis-Chalmers motors and controls. Also being furnished is a 13x30-ft Peirce-Smith copper converter complete with motor, drum control, magnetic brake and gear reducer drive.

Some Equipment Listed

Electrical equipment furnished for metal rolling mills included a 4000-hp main roll drive and variable voltage screw-down and shear drive control for a Detroit reversing blooming mill, two 1500-kw rectifier units, and 13.8-kv, 2300-v and 480-v switchgear lineups for a midwestern steel plant. At this same plant, a six-stand billet mill equipped with Allis-Chalmers 1750-hp motors, supporting m-g sets and control, is scheduled for operation in 1950 along with a similar four-stand billet mill with 1250-hp drive motors.

Equipment is also being supplied for revamping a single stand temper mill and cleaning line recently installed in a midwestern plant. The changes are being made to improve operation on heavier products. Revamping operations have also been started on an eastern single-stand temper mill.

Precision Casting Expands

Precision casting activity during the last year was marked by an increase in both overall production volume and in variety of parts being cast. Most of the castings fabricated were for the aircraft industry and included structural

airframe parts as well as jet engine blading.

Among the more interesting castings produced were rotor and stator castings for an oil well turbo-drill, weighing 8 and 12 lb, respectively. After extensive development work, these difficult castings—each a disc cast with as many as 30 integral blades—were in commercial production as the year ended, and development work was started on castings for a smaller version of this drill.

New production equipment installed in the company's precision casting foundry included a new batch-type curing furnace and a new injection machine developed especially for making wax patterns for the jet engine blades. Production was also aided by the development of new investment materials which exhibited more desirable surface characteristics and greatly increased strength.

Small Transmitter Completed

Development on a new small size transmitter, Type 378, has been completed. Companion to the 357-1 5-w receiver, the new unit offers features not obtainable with the a-c system. It is expected to fill a wide range of indicator applications.

To widen applications for the automatic vari-pitch sheave, new sizes have been developed so that it is now available in ranges from 1½ to 40 hp with Q or R section belts and for drives up to 60 hp using S and T section wide-range belts. It is filling a need for simple, low-cost, multiple-groove sheaves with the motion-control variable-speed feature.

New developments in Allis-Chalmers' v-belt sheave lines include redesigning of the entire line of cast iron adjustable sheaves to provide longer and heavier hubs and a generally sturdier construction, a worm gear control for stub-shaft and through-shaft motion control vari-pitch sheaves, an anti-creep device for use on vari-pitch sheaves where the handwheel must be held at a precise setting, and a floor stand adjusting mechanism for

large vari-pitch motion-control drives where an idler is used.

Small Compressors Redesigned

The company's smaller sized rotory compressors were redesigned in 1949 for simpler maintenance and to reduce the number of sizes needed to cover normal volume and pressure requirements. The new unit is designed so that each size of machine can be used as either a compressor or a vacuum pump over a wide range of conditions by adopting different operating speeds.

Attempts to Attract New Industries to Available Sites

Portland, Ore.—Through recent acquisition of 37 acres which were once part of the Willamette Iron & Steel Corp.'s wartime works and the release of Swan Island by the War Assets Administration, Portland now has available large sites to which it is attempting to attract industry.

The Port of Portland Commission has employed Ivan Block, power consultant to assist in promoting the industrial growth of the area. Looking ahead to the completion of the McNary Dam and other projects within the next 3 or 4 years and with an abundance of fresh water available, the commissioners believe they have worthwhile inducements.

The Portland Commission of Public Docks traded 85 acres of lands it owned in the old Oregon Shipbuilding plant to the War Assets Administration and paid an additional $213,000 cash for the 37 acres of the wartime Wisco plant properties.

Swan Island had been leased to the federal government for 10 years and the lease had 2 years and 4 months to run when an agreement was made between the Port of Portland and the WAA which provides for the payment of $350,000 by the Port to the WAA for buildings and some equipment necessary to operate the drydock on the island which is owned by the Navy and leased by the Port.

Power Picture Improves; Industrial Use Being Pushed

Los Angeles—With power supplies now in surplus in most of California even during dark winter months, electric utility companies are shifting rapidly to a promotion program and will attempt to urge innovations using more electricity in steel and other heavy industry.

"Industry is far from complete in the amount of electricity used or in its better techniques using power," according to Harold Quinton, executive vice-president of the Southern California Edison Co.

His company is one of the largest power concerns in California but is considerably smaller than Pacific Gas and Electric Co. which has headquarters in San Francisco.

Outlines Proposed Plans

Mr. Quinton outlined to THE IRON AGE plans to have power company engineers study techniques in which electricity can become more helpful to steel, iron and other industries and turn them over to the companies involved for study and perfection by their own engineers. He believes other utility companies plan to follow the same line. This was indicated at a recent meeting of the southern California-Arizona industrial power companies. Completion of the 75-ton electric furnace at the plant of Bethlehem Pacific Coast Steel Corp. here in the first quarter of 1950 and the proposed sheet mill of Columbia Steel Co. here will afford welcome power loads.

During 1949, the industrial demand for electricity in southern California increased only 4 pct for the Edison Co. Five pct or greater is considered more normal. Residential increases, with the flood of newcomers still flowing, have been up to the 14 pct mark this year.

Last year, a power shortage caused Governor Earl Warren to put into effect daylight savings time until the power shortage

emergency was over. Southern California was in a better position than northern California, however, and sent some power surplus to the Pacific Gas and Electric. All companies have increased facilities during the year with several power plants, which were under construction during the emergency, now completed. San Diego, which has been near emergency status on some occasions, also relies on Edison for a standby of 37,500 kw.

New Plants Being Built

One of the biggest additions to southern California power has been the completion of a plant along the ocean at Redondo Beach. This plant produces 280,000 kw.

Edison also has a $20 million project for 85,000 kw under way at Big Creek and PG&E will bring in a Kings River plant.

Steady water sources for hydroelectric operation at economic costs have about been drained, however, and if other new plants are built in the West, they probably will be steam-electric as is prevalent in other portions of the country. Water for plants now being built is not handled as economically as was true in earlier installations, according to Mr. Quinton.

Management Problems Change

"Utility managements everywhere are shifting their attention from the problems of securing new plants, and the necessary financing for them, to the problems of sales and distribution in a changing economy," he said. Edison has spent close to $200 million in installations and PG&E close to $600 million.

In a talk at the southwest conference, Arthur D. Bragg, manager of the General Electric Pacific district apparatus department, reported that the use of electric power in industry has increased 110 pct in the 9 years from 1939 to 1948—from 79.0 to 165.8 kwh.

Up in the Pacific Northwest where a month ago aluminum reduction plants were forced to cur-

tail production because of power shortages, recent heavy rains have reversed the picture and recently the Bonneville Power Administration reported that it will again begin delivery of 60,000 to 70,000 kw of interruptable power to these companies. Alcoa will probably receive about 42,000 kw of this energy and Kaiser Aluminum & Chemical Corp. at Mead, Wash., will get the rest.

Steep Rock Ore Reports

Toronto—Steep Rock Iron Mines produced approximately 1,300,000 tons of iron ore from the property at Atikokan, Ont., this year, company officials announced. Due to the U. S. steel strike, shipments of 1,131,977 tons were slightly below the 1949 objective of 1,200,000 tons. Shipments did not constitute a record for the company as they were below the 1,206,248 tons of 1947

The company will start the New Year with a good stockpile of ore and no difficulty is anticipated in liquidating it.

Production Program Planned

Work is progressing on assembling equipment for the big program designed to step production up to 4,000,000 tons annually. Involved in the new project is the stripping of the "A" orebody and the sinking of a shaft for mining of ore from the "B" orebody from whose open-pit all ore to date has been derived.

Charges Illegal Price Fixing

Washington—The Dept. of Justice reports that 13 individuals, 12 corporations and two trade associations had been indicted by a California federal grand jury on charges of illegal price fixing on vertical turbine pumps.

The department maintains that the defendants control 90 pct of such production and the indictment charges that since 1944 "have unlawfully fixed and maintained the prices" on such pumps, parts and services throughout the country.

Over Half of ECA Funds Boost Steelmaking Capacity

ECA has already approved 56 projects in nine countries.

Washington—More than half of the Marshall Plan funds earmarked for restoration of Western European industry will go into increasing or building new steel capacity. Aid will go into increasing steel capacity in six countries, either by modernization and expansion or construction of new facilities.

Altogether, ECA has approved 56 major industrial expansion projects in nine countries, costing a total of $1.3 billion. Roughly a fifth of this amount will come out of ECA funds.

Twenty are iron and steel mill projects which will cost $650 million to complete. The ECA will foot nearly a fourth of the cost of $142 million. Slightly less than this amount has already been authorized.

Steel Projects Get Most

In addition, ECA is helping finance expansion of two aluminum plants and two mines in France, an automotive plant in Italy, and an iron ore mine each in Norway, Turkey, and Austria.

About 70 pct of ECA money allocated for French industrial projects is committed for four steel projects. These include new rolling mills for Carnaud & Forges de Brasse; hot and cold strip mills, a blooming mill and an 84-oven coke plant for SOLLAC; an electric blooming mill for Societe Lorraine des Acieries; and a hot strip and cold rolling mill at Montataire.

Expansion of French steel capacity will cost about $212 million of which $65 million will be supplied through ECA. Other French ECA projects include $2 million for ore handling equipment for the Lorraine iron ore mines.

British and Italians Share

Despite probable nationalization of the British steel industry next year, ECA is throwing $30

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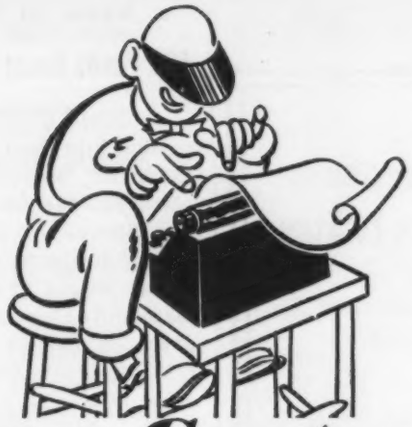
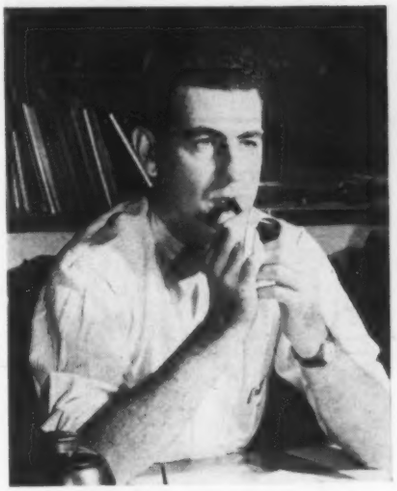


Dear Customer

by Jack R. Hight

PINWHEEL EDITOR—The pivot of this annual issue of THE IRON AGE has been its tall, enigmatic managing editor, Bill Phair. When plans were made to make this 95th Annual Edition something special, even as annuals go, there were a group of people involved. But after all present had agreed that it would be desirable to gather up all the facts in existence for one copy of the magazine—the big question was—can it be done?

Typically, at that point, all present turned to Bill Phair to know, is it possible? Bill bit hard twice on the stem of his pipe, thrust his jaw forward slightly, and came up with an affirmative answer.



To Bill Phair, from that moment forward there were no longer any reasons pro or con. He forgot all about why we should attempt it, and he forgot that there some reasons why it was a stinko idea. Since that moment it has all been a matter of technique—how can it be done best.

It is typical of the managing editor that he can come up with such a momentous decision without too much preliminary flimflam. Bill Phair has grown up with this outfit, had a lot of experience here in New York before the war, did a stretch with the Journal of Commerce as a reporter, came back to THE IRON AGE, served as district editor in Chicago, did a hitch with the Seabees in the South Pacific, came back to be technical editor in New York, and was made managing editor this summer.

As we write this column, the deadline is drawing near for the editors. Bill is quite evidently on top of the situation. Early in the game, when we lackadaisical contributors to the issue weren't worrying about it, the managing editor was heckling everyone to get busy. Now, when everyone else is in a tizzy—Phair is gliding about, no grip on his pipe at all, his pants at a casual half mast below his waist, a smile on his face, and good will toward all. All we can say is that it is sure to be a good job now, and we're glad that he had to put it together instead of us.

ECA Funds Boost Steel

Continued from Page 438

million into the U. K. $300 million expansion projects involving the plants of the Steel Co. of Wales and Stewart & Lloyds Co., Ltd. These projects will vastly increase output of sheet, strip, tinplate and tubes and materially cut down on British imports of flat rolled products for automotive and other needs.

Some $25 million in Marshall Plan aid has been approved for eight steel projects in Italy which will eventually cost $90 million. It will go into electric furnaces and pipe making equipment, and slab, billet, wire rod, strip and plate mills.

Much of the production will be required by the Fiat enterprise into which ECA has put $15 million and will later invest from $10 to $20 million more. Fiat is expanding production of automobiles, farm equipment, diesel engines, and other products.

All of the $20 million committed for Austrian industrial development will go into four steel plants and an iron mine. Some $18 million is being spent for a slabbing and blooming mill and a strip mill at Linz, and a continuous billet mill at Donawitz. Nearly $2 million will be spent for restoring 20 pits in the Erzberg area where iron ore has a high manganese content.

Help for two Belgian steel projects will consist of a hot strip mill for the Phenix Co. and a strip and a cold finishing mill for Esperance Longdoz Iron & Steel Co. This assistance will virtually restore Belgium to its previous position in the export field. Total modernization is estimated at $10 million of which a third will be provided through ECA.

Turkey is currently pledged $11 million in ECA assistance for restoration of coal mines in the Zonguldak region and another $1 million for development of iron ore and lignite mines. Overall cost of the projects is estimated at $58 million or a third of presently planned industrialization.

Resume Your Reading on Page 439

Tower Reports Added Steel Capacity Can Satisfy Demand

Fears higher costs, including labor, in months ahead.

New York—The steel industry ran the gamut of production, from the loftiest point ever attained to one of its lowest recorded depths, in making 77 million tons of steel during 1949. This was the third largest annual output for peacetime uses, Walter S. Tower, president, American Iron & Steel Institute, reports in a year-end appraisal of 1949.

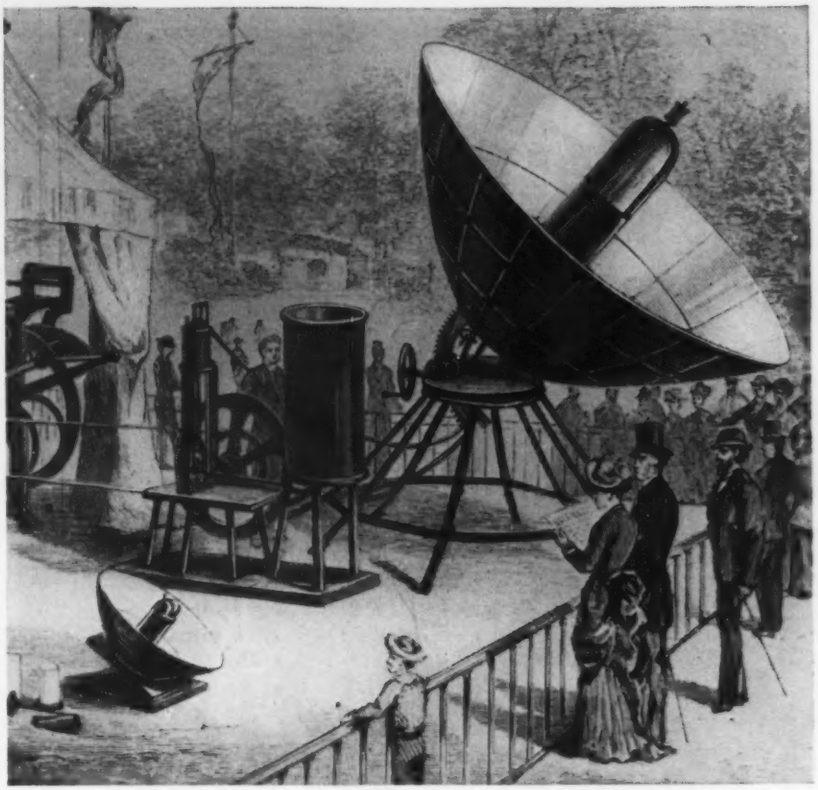
The industry's steelmaking furnaces have now poured about 341 million tons in a little more than four years since the war ended, or within 10 pct of the amount made all during the 1930's. This great surge of production was achieved despite two paralyzing steel strikes and numerous interruptions in coal production as well as raw materials shortages and other hindrances, Mr. Tower said.

A strong start appears to be in prospect for 1950. The output of the new year should send the postwar production total well over 400 million tons.

New First Quarter Record

Steel companies are reported to have large backlogs of orders as a result of the long steel strike last autumn. But they have more capacity than ever before, as a result of their large scale programs of postwar expansion and improvement. Even if there should be a further sharp increase in the buying of steel, there is not likely to be any continued tightness in supply of most products as long as steel companies are unimpeded in their production. Company expansions have more than kept pace with the increase in demand for steel.

The benefits of those expansion programs were forcefully demonstrated in the first quarter of 1949 when production averaged more than 8 million tons a month for the first time in history. Another impressive feat was the fact that more than 92 million tons of raw



Mouchot, a Frenchman, invented this sun-powered generator that ran a printing press.
THE BETTMANN ARCHIVE

steel were produced in the twelve consecutive months ending April 30, 1949. Never before had so much steel been made in a like period in this country.

This tremendous output stilled the dire predictions about shortages, and enabled the production of homes, automobiles and other items to surpass records that had stood for 20 years or more.

Fears Higher Costs

In 1950, high costs may be a grave problem for iron and steel companies. Pensions and other benefits to be paid for by the companies will increase costs, although the impact will vary among individual companies. The high cost of replacing plant and equipment has been a serious problem for some time. Other costs also have soared.

The average hourly wage rate for all employees engaged in the production, sale and distribution of iron and steel was the highest ever recorded during 1949. The total payroll of iron and steel companies, not including non-steelmaking operations, was the second highest in history, at $2 billion.

Receive Quartermaster Awards

Chicago—The Chicago Quartermaster purchasing office recently awarded two steel firms contracts which totaled $185,749. Signode Steel Strapping Co., of Chicago, was awarded a contract for 2¼ million units of steel box strap seals. Acme Steel Co., also of Chicago, received a subcontract under the same purchasing order calling for 1,380,000 lb of flat-rolled steel staples.

Other awards made by the same purchasing agency were to International Harvester Co. for 4992 8-cu ft box electric refrigerators and to Frigidaire Sales Corp., Moraine, Ohio, 3750 of the same sized refrigerators and 312 12-cu ft size boxes. International Harvester Co. produces their refrigerators at Evansville, Ind.

GLOBAL LETTER

REVIEW OF WORLD MARKETS

Continued from Page 28

The SOLLAC plants are to be completed early in 1952. France will then have, including the hot and cold mills of the USINOR company, two hot strip mills and two cold reduction mills, as well as one tinplate mill. It will be the only country on the old Continent to have such an array of modern equipment. Only semi-continuous rolling mills are provided in the modernization plans of Belgium, Luxembourg, Austria or Italy. In England there will be three hot strip mills and several cold mills.

Raises Sheet Capacity

Outside of continuous rolling mills France will have several mechanized mills which will be specialized on certain grades of sheets. Compared with the prewar period, France's sheet capacity will be substantially increased even taking into account the closing of old handmills which are now obsolete. Modernization plans in this sector are expected to bring a revolution on the home and export market for French rolled steel products.

An official ceremony accompanied the laying of the first stone of the future SOLLAC building on Dec. 23. It marked an important event in the painful efforts of the French iron and steel industry toward recovery. After 10 years of little plant renewal and technological progress, it is hoped that it will make a substantial contribution toward modernization of all industry.

Expect Market Changes

Modernization and development plans in France are aimed more at extending finishing capacity, rather than at providing more crude steel capacity. Today's steel buyers want more flat, light products than in the past. Foreign countries are developing their own production of pig iron and crude steel. They are also making more semifinished and heavy products. But they are still hungry for flat products. Moreover, progressive industrialization is expected to increase the market for sheets and tinplate.

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GLOBAL LETTER

Continued from Page 456

Brazil Is Surveying And Classifying Mineral Resources

Sao Paulo—Mr. Frank E. Noe, of the United States Bureau of Mines, has now submitted to the Ministry of Agriculture the program of work he proposes to carry out with the collaboration of the National Department of Mineral Production the NDMP. It includes the study of deposits of fertilizing materials especially the technical treatment and concentration of phosphates and potassic rocks in the Poços de Caldas region of Minas Geraes; experiments for sintering fine iron and manganese ores and the method of concentrating the refuse of the mines, which was begun in North-East Brazil during the war.

A comprehensive plan of activities to be carried out during the next 5 years has also been submitted to the President by the NDMP. It provides for fuller investigation and exploitation of the country's mineral resources. The known deposits are concentrated in the eastern and southern regions, the most densely populated and economically advanced areas of Brazil.

Resume Your Reading on Page 29

THE CLEARING HOUSE

NEWS OF USED, REBUILT AND SURPLUS MACHINERY

Brooklyn electrical business off in 1949; dealers optimistic for future

Good prospects for 1950 reported by New York machinery dealers

Chicago activity off 15 pct; dealers await Truman address

Eastern Electrical Equipment Dealers Report 1949 Sales Down

Brooklyn—Dealers in used and rebuilt electrical machinery in the Brooklyn area report that, although the overall 1949 business was from 30 to 40 pct off from the previous year, prospects for the coming year seem very favorable.

Judging from the constant rise in business activity from October until the year end and from the present rate of inquiries and sales, most dealers are of the opinion that 1950 should be prosperous. One dealer reports that inquiries are 80 pct, and sales 60 pct, above the July doldrum period; that the rise in his sales volume has been slow but constant ever since the first recovery during the first part of October; and that judging from past history and the number of live inquiries he now has, business should continue to be good for at least the first half of 1950.

Inquiries and Sales Raise Dealer Hopes for Coming Year

New York — Prospects for the new year are reported to be favorable according to dealers in used and rebuilt small machine tools, heavy mill equipment and rebuilt power plants in the New York City area. Reasons stated for the present optimism are the present rate of inquiries and sales, along with the promised business to become effective after the turn of the year.

Dealers in metalworking and power equipment report that overall sales volume for 1949 was from 30 to 50 pct off from the previous year, while one large rebuilder of diesel-powered generating units claims a 10 pct increase in sales over 1948.

Almost all machine tool dealers report that the steady climb in activity since the September-October period reached its height in December. Most claim that present sales and inquiry activity is 40 to 60 pct better than in July.

In the overall, although 1949 was bad compared with previous years, most dealers have resigned themselves to the fact that this is getting closer to the normalcy of supply and demand. They admit that they are now out digging for the business they get. Gaging from present indications and orders promised, these New York dealers feel that the first two quarters of 1950 will be prosperous ones.

Chicago Dealers Report 1949 Machinery Business Off 15 Pct

Chicago—Used machinery dealers are estimating that their 1949 business will show about 15 pct less volume than last year. Right now business is very slow. Many companies expect business to pick up in January inasmuch as a lot of replacement plans are expected to materialize by then. The dealers report that business postponed six or seven months ago has been rescheduled and expect these contracts should be let early in the first quarter. Some of the machinery dealers say that the rise in

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MDNA CHAPTER MEETINGS

CHAPTER	DATE	TIME	PLACE
Detroit	Tues. Jan. 10	7:00 p.m.	Brown Co.
Chicago	Thurs. Jan. 19	6:30 p.m.	Steak House
Philadelphia	Tues. Jan. 24	6:30 p.m.	Warwick
New York	Mon. Jan. 30	6:30 p.m.	Cavanagh's
Los Angeles	Tues. Jan. 31	6:30 p.m.	Elks Club